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HALLUCINATIONS: THEIR ORIGIN, VARIETIES, OCCURRENCE AND DIFFERENTIATION.¹

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It may seem like carrying coals to Newcastle to present a topic apparently so threadbare as this, and particularly to you, who have devoted many years to its study and observation, from the fact that hallucinations are among the most common of the symptoms presented by the cases under your care. Furthermore, I am aware that there are few subjects on which more has been written, but I still have the temerity to contribute to a bibliography already voluminous, in the hope of offering food for reflection, even although I may be unable to tell you anything new.

Hallucinations have been variously defined by different writers. Thus Esquirol states: "A man, who has a profound conviction of actually perceiving a sensation, where there is no external object to excite that sensation, and it is not brought through any of his organs of sense, is in a state of hallucination." M. Ball says: "A hallucination is a sensation without an object;" Regis: "An idea projected outward, an exteriorized perception." We may briefly state that a hallucination exists when a sensory impression has arisen without an external stimulus and without the presence of any primary sensation, so that the hallucinator may hear voices in absolute silence, or see forms in the cloudless sky.

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Physiological psychology teaches us that all sensations occur in the brain cortex, that is, they have there their correlative material processes—the sensations of sight in the visual area of the occipital lobe, the sensations of hearing in the acoustic area of the temporal lobe, etc., and consequently we must admit that pathological sensations or hallucinations are also located there—perverted visions in the visual area, perversions of hearing in the acoustic area, and that, hence, all are of cortical, although it was once contended that they were of infracortical origin arising in the corpora quadrigemina, etc. A further question is: Where do hallucinatory excitations originate? To the best of our present knowledge and information they have their primary origin from our memory-pictures and ideas. Normally an external stimulus causes a sensation in the cortical cells and this sensation is retained by the memory-cells as a memory-picture or idea. In the case of a hallucination the reverse obtains, and the memory-pictures from which it may take its origin are sometimes latent, that is, not actually present at the moment in our consciousness, which at other times, however, may be active and thus an idea is often the basis of a hallucination. We may, therefore, classify hallucinations as concomitant and spontaneous. It may also often be demonstrated that there is a stimulus acting on the sensation cells, as, for example, in the visions of the alcoholic, who sees various insects flying about the room. A stimulus seems to be actually absent, and an external stimulus in the usual acceptance is wanting, but a more thorough investigation may be able to demonstrate that stimuli are acting on the nerve tract from the sense organ to the brain cortex. In the sense organ itself such stimuli are often present and among these are to be included the corneal opacities, the chronic inflammatory processes of the middle ear, etc. The true nature of such entoptic and entotic stimuli is apparent when a psychosis does not exist; the corneal opacities are then *mouches volantes*; the irritative processes in the tympanic cavity, in accordance with the law of specific energy, are simple subjective noises. But when a psychosis is present the *mouches volantes* become swarms of insects, the simple noises, hallucinated words. The evidence that such entoptic and entotic stimuli are often the basis of hallucinations is to be found in the gradual transformation of simple subjective noises into voices during the

course of the disease, and later, on recovery, in the return of the voices to subjective noises again. Cases are recorded in which the cure of an otitis media has relieved the hallucinations. The unilateral hallucinations occasionally observed are often similarly explicable; where the patients hear voices in one ear or see visions with one eye, a careful examination is often able to demonstrate some peripheral disease of the eye or ear concerned. Again, the source of irritation may not be in the sense organ, but along its tract or located centrally; thus atrophy of the optic, acoustic or olfactory nerves, instead of precluding hallucinations, often furnishes the requisite irritation for their occurrence.

I believe that the more we make it a matter of routine to carefully examine the peripheral sense organs, the more often will we be able to discover sources of peripheral irritation. You may say that in these cases the false sensations are no longer hallucinations, but rather illusions; but since this would entail endless confusion in distinguishing between the two forms of false sensations, it is far better to regard them as hallucinations, owing to the absence of any external stimulus, for in every hallucination a stimulus must be the exciting cause, whether it acts on the peripheral organ, the sensory nerve tract, or the brain cortex.

Hallucinations affect all the senses, and each has its several peculiarities. As a consequence, we have hallucinations of sight, hearing, taste, smell, touch, as well as hallucinated organic sensation, hallucinations of movement and compound hallucinations.

Hallucinations of sight or visions may take the most diverse forms. The simplest appear as mere sparks, flashes of light, mists and shadows, while in the more complex, landscapes and persons are represented in complete detail. Sometimes they are wholly devoid of color, phantom-like, while again they have the brightest and most glaring colors, more particularly in alcoholism and epilepsy. They also vary in distinctness, at one time being flat, at another in bold relief. Now a single object appears; again, numberless forms fill the visual field. The forms presented may be of abnormally large size, or again of miniature dimensions, although the natural proportions are the most common. The hallucinated objects may seem close by or far away; they may hide actual objects, or the latter may shine through the visionary forms.

The most elementary hallucinations of hearing consist of various noises, moanings, hissings, rumblings, etc., the most complex of words. These appear to be spoken in the natural tone, in an unusually deep voice, or whispered. The hallucinator may be able to recognize his acquaintances in the fancied voices, as well as those of men, women and children; or they may seem entirely strange to him. Sometimes single words are hallucinated, for example, "help;" at other times complete sentences are heard. At times the voice enunciates distinctly, while again the patients say it is scarcely intelligible. The voice may have an entirely unnatural sound, or it may seem perfectly natural. Melodies are occasionally hallucinated instead of words. Sometimes the voice seems far away, again close at hand.

It is scarcely possible to isolate hallucinations of taste, owing to the close relationship existing between the senses of taste and smell, but in the usual acceptance of the term taste, various sensations of this sense are hallucinated, as, for example, when the patient tells us he tastes blood, poison, feces, etc.

Hallucinations of smell are extremely common, and patients often complain that they smell various noxious gases, feces, chloroform, and more rarely, pleasant odors, like the fragrance of flowers, etc.

Hallucinations of contact may occur anywhere on the surface of the body, and occasionally affect the mucous membranes also. The patients state that they have been stabbed, struck or caressed, by some unseen person; in other instances spiders' webs or insects cover the body, or the victim is constantly subjected to electrical shocks. The varieties of tactile hallucinations are very numerous and by no means exhausted by the few instances I have just enumerated. A person with delusions of persecution may fancy that some one is constantly treading on his heels when he goes for a walk. A feeling of heat or cold is quite often added to the tactile hallucinations. Tactile hallucinations are of very special importance in the sexual sphere, where all the sensations of a cohabitation effected, even including the pleasurable feeling, are hallucinated. The various sexual indignities, often complained of by patients, are likewise wholly hallucinatory.

Hallucinated organic sensations have a close relationship with tactile hallucinations. Patients often complain of the peculiar

sensations they experience, such as movements and twisting of the intestines, crawling sensations in the stomach, etc.

Movements are also hallucinated and occur when patients say they feel themselves lifted in the air, or that their heads are turned this way or that; the movements of speech are also occasionally hallucinated, when the patient fancies he has said something.

Hallucinations often affect more than one sense at a time and the patient not only hears a fancied voice, but sees the person speaking. Occasionally a tactile hallucination is superadded, when the patient feels that he is caught hold of by the imaginary form talking to him. The more hallucinations that are combined and occur simultaneously, the harder it is for the patient to distinguish them from the reality. Tactile hallucinations and those of movement are often associated, so that the patient feels the hand which turns his head to the right or left; and usually, during the course of a psychosis, one hallucination after another is added to the combination until the structure is quite complex.

Hallucinations, like normal sensations, have their special tone of feeling, which is usually intense, the negative or unpleasant being more common than the positive or pleasant.

In the matter of spatial projection, hallucinations are subject to the same laws as normal sensations, and at one time are located in the immediate vicinity and at another far away. When this phase of the disorder begins to disappear, they generally become more rare and less vivid, as well as being projected at a greater distance. Hallucinations are occasionally located within the body, and this is true particularly of hallucinations of hearing, when a patient says a voice speaks within his head, thorax or abdomen. Hallucinations of hearing are very apt to be located in the chimney or ventilator shaft, this location being usually secondary; at first it is entirely indefinite, but since the patient does not see the speaker and yet hears him distinctly, he gradually gets the idea that he is hidden in the chimney, etc. Sensory irritation may occasionally be influential in determining the location of hallucinations of hearing; for example, patients hear voices in the abdomen when it is the site of a neuralgia or some other pain.

It has been found that some visual hallucinations disappear soon after closing the eyes, although, on the other hand, there

are patients in whom closing the eyes seems essential for their appearance. The same is true of false hearing. The exclusion of external stimuli is of no account in many cases, although in occasional instances it is observed that the false hearing becomes especially distinct during absolute silence, while other patients require soft sounds to bring about the manifestation. The same rule also applies to visual hallucinations, some occurring when the field of vision is unoccupied, others only when it is filled with numerous objects.

Actual stimulation of the other senses often weakens and may temporarily even bring about the disappearance of a hallucination of one sense. Thus, for example, a sudden noise not infrequently renders indistinct or dispels a visual hallucination. Inversely, simultaneous stimulation of some other sense is occasionally requisite for the occurrence of a hallucination in one not peripherally stimulated. Such hallucinations are said to be of reflex origin, and differ from secondary sensations in that an idea is inserted between the normal primary sensation and the hallucination. The attention exercises no little influence on the hallucinations of many patients for they hear voices as soon as, for some reason or other, they happen to listen, while others see visions as soon as they look in a certain direction. In both instances the tension of the apparatus of accommodation is the cause of the false sensation and these patients are then said to be able to hallucinate voluntarily.

It is of great diagnostic and prognostic importance to ascertain how far hallucinations correspond to the momentary contents of the patient's thoughts. A hallucination is never an entirely new creation, but is simply a reproduction of memory-pictures, and in the cases in which the hallucination seems strange and enigmatical to the patient, a new combination occurs between the component memory-pictures; thus strange faces appear and sentences are heard which are unintelligible. This same process practically goes on in the sane in the formation of new ideas from fragments of memory-pictures and is called imagination, but the imaginary ideas remain simply as such, while in the hallucination they attain sensory activity and become sensations. The fact that hallucinations are not new creations explains why those who are congenitally blind never have visual hallucinations, which often occur in those who have become blind.

Our brain is stored with numerous ideas or memory-pictures, of which the majority are latent, that is, remain merely as material traces without a correlative psychical process, and only a few are actually present at any one instant—those, as popularly expressed, of which we are thinking at that moment. Consequently, hallucinations may with advantage be divided into those which correspond to the momentary content of consciousness or the actual ideas, and those which bear no relation to the momentary content of consciousness, but arise from latent and often half-forgotten memory-pictures, either in old or new combinations. The first are called *concomitant* or *attendant*, the latter *spontaneous* hallucinations. The former, as a rule, are less varied and less sharply defined, that is, they are less realistic and distinct than the spontaneous. Corresponding to the constant change in the contents of consciousness, the concomitant hallucinations are very unstable, while the spontaneous are often characterized by their great constancy. Concomitant hallucinations of sight make the patient feel that all his thoughts are pictured out and that his thoughts are spoken aloud in concomitant false hearing. Concomitant hallucinations of hearing are often located in the head, and the voice is usually indefinite, although it occasionally corresponds to the patient's own, and more rarely to that of some one else.

It frequently happens that concomitant hallucinations represent no mere repetition of the patient's momentary ideas, although they are unmistakably related to them. This is particularly true of the form of hallucinations of hearing in which the voice comments on the patient's thoughts. Sometimes, as a result, we have an actual dialogue between the patient and his voice, the aptness of the hallucinated remarks being often astonishing.

Spontaneous hallucinations often surprise the patients, the memory-pictures from early childhood being not infrequently their basis.

The influence of hallucinations on idea association depends largely on whether the hallucinations are accepted or not as actual sensations. In this connection three conditions are to be differentiated: 1. An external stimulus is accepted for the hallucination as though it was a normal sensation. But this does not prevent the patient from regarding the hallucinations as a trick played on

him. 2. The hallucination is differentiated from an ordinary sensation, but decisive importance is ascribed to it, so that judgment and action are influenced. In this instance the hallucination is regarded as a divine revelation. 3. The subjective origin of the hallucination is correctly recognized to be the evidence of a morbidly excited imagination and is occasionally ascribed by the patient to the efforts of his enemies to poison him. The conditions mentioned under 1 and 2 are the most common when several senses are affected simultaneously. If the hallucinations affect only one sense, their intensity, frequency and relation to actual ideas decide whether they are accepted as real or not. Hallucinations existing for years generally bias the patient's judgment and he accepts them as realities.

When hallucinations are accepted as realities, their influence on thought and action is overwhelming, in fact, more potent than normal sensations, reasonable arguments and admonitions. Hallucinations at one time inhibit, at another accelerate, the flow of ideas; inhibition resulting from hallucinations of a terrifying or ecstatic nature, while those moderately pleasing, as a rule, exert a contrary effect. Nevertheless, in many individual cases, it is often hard to decide why the hallucinations should either inhibit or accelerate the flow of ideas. When they are numerous and devoid of all connection, they interfere with the idea association and cause confusion, which is manifested by the patient's incoherent talk. This hallucinatory confusion is usually combined with disorientation. The hallucinatory appearance of persons living far away and distant landscapes disorders the patient's orientation as to time and place, and he fancies he is living in another place and at another time.

Hallucinations are often the direct cause of disorder of the contents of thought, that is, of delusions. For instance, a voice tells the patient: "Thou art Christ," and he is at once imbued with the idea of his Messiahship: he has a grandiose delusion through a hallucination.

The actions are influenced in accordance with the contents of the hallucinations. Hallucinations mould the facial expression. Attentive listening or sudden abstraction is indicative of false hearing; staring into vacancy, glancing here and there, point to visual hallucinations. Characteristic movements of defense are

often observed, by which the victim tries to ward off unpleasant hallucinations. Visual hallucinations cause the patient to close his eyes and turn away his head, while the person with false hearing stops his ears, stuffs them and the key-hole with cotton, and crawls under the bed-covers; those with hallucinations of taste expectorate constantly or refuse food. Hallucinations of smell lead the patient to hold his nose or suddenly break windows in order to get fresh air and so relieve the hallucinatory torment and suffocation. On their recovery patients will often tell you why they did these things. Hallucinatory motor sensations are significant; they often cause the patient to perform absurd movements, which are made either to counteract the effect of the hallucination or are due to its action. When the hallucination affects the muscles of speech, it causes the patient to articulate words, since he fancies he feels the muscular contractions appropriate to them. When the patient tries to counteract his hallucinatory movements, he assumes various attitudes, which have been called hallucinatory imperative attitudes. These hallucinations often continue for some time and cause the patients to repeat their various movements so that they are constantly in certain attitudes, which with the movements mentioned are called katatonic.

Hallucinations also cause many complex actions, as, for instance, when a voice commands the patient to do this or that. In other cases again, the hallucination inhibits movement, as when the voice threatens the patient with instant death should he stir. Besides threatening voices we also have visions, which so entrance the patient that he does not move. Thus, he may see the heavens opened and God surrounded by His angels. Such hallucinations are termed fascinating. Hallucinations, when very changeable and accompanied by an intense tone of feeling, often have an accelerating effect on the motor innervations and so produce agitation, which is often increased to frenzy.

The usual reason for a physician to assume that hallucinations are present is that the patient speaks of sensations for which no adequate stimulus can be discovered. Nevertheless, we must always be guarded in our assumption that we are dealing with hallucinations, inasmuch as errors may readily occur in the following ways: 1. The sensation may have actually occurred. 2. The patient may have dreamed of the sensation and now fails to

remember that it was a dream. 3. It may be an illusion, that is, a stimulus is actually present, but has been transformed; or the patient hears the words differently from the way in which they were really spoken. 4. It may be an instance of delusional explication, that is, the patient falsely interprets the sensation experienced from an actual stimulation.

The following familiar case may suffice to illustrate these various conditions. A patient tells us that she has heard her children crying in the night. To assume at once that this is a hallucination would be entirely wrong in many instances. It is possible that her children were actually crying in the vicinity, but this point can be definitely decided. Again, she might have dreamed of her children crying and now confounds the experiences of her dream with those after awaking. If this can be eliminated, it must then be ascertained whether some noise at the time in question may not have occurred, which she falsely senses as the crying of her children—an illusion. Finally, the possibility is to be considered whether she has not actually heard some children crying, whom she thought were hers. When all these possibilities have been excluded we may accept with reasonable certainty that a hallucination actually exists.

Equally as great, on the other hand, if not greater, is the danger of overlooking hallucinations actually present. In this connection we often meet with patients who shrewdly cling to the false sensation even with the consciousness that they are morbid, or at least, in speaking of them, would be considered so. In this case we may often gather presumptive evidence by closely observing the patient's expression and behavior. We also meet with the same difficulty when the patients are so confused that they are unable to give any account of themselves or their sensations. By carefully watching the letters of certain patients we can often obtain the desired data, for they will confide their hallucinations to paper or other patients rather than to their physician and attendants.

Hallucinations, although very rarely, are sometimes observed in the sane, that is, without any other psychopathic symptom. They are usually symptoms of a psychosis, and even if they appear alone, they must always be regarded as suspicious manifestations. They are known to occur in individuals of a psy-

chopathic constitution, but who are in no other way psychopathic, after physical and mental stress as well as in intense emotions.

Special mention must be made of hypnogogic hallucinations, which are quite common to the sane on closing the eyes, particularly before going to sleep. They usually consist of indistinct, pale faces, more rarely of figures and landscapes. The specific energy of the retina is undoubtedly concerned in their origin.

The more important conditions which may lead to the occurrence of hallucinations, and usually in combination with other psychopathic symptoms, are:

1. Toxic conditions, most often, but not exclusively, in the acute forms. It is a well-known fact that many drugs, particularly opium, belladonna, hyoscyamus and stramonium, with their alkaloids, very often give rise to hallucinations, especially in individuals of a psychopathic constitution. In all these cases disorders of idea association are always present. Alcohol also, especially in chronic excesses, as well as after its sudden withdrawal from habitues, causes hallucinations.
2. In febrile conditions when a psychopathic constitution exists, the cause being the infectious poison more often than the increased temperature.
3. In disorders of nutrition, as after severe hemorrhages, in inanition, etc.
4. After caloric injuries.
5. Several neuroses are accompanied by hallucinations, particularly hysteria, chorea and epilepsy. In the last, hallucinations not infrequently occur as an aura, and, as a rule, are of a terrifying or of a religious nature; they are very vivid and often constitute a connected hallucinatory experience like a dream, being the chief factor in the dazed condition common in epileptics, which often follows the seizures or replaces them and may last for some time, often for weeks.

Hallucinations are very common in the various forms of paranoia, and sometimes, though rarely, occur in states of simple exaltation and depression. In the different forms of dementia they are occasionally observed, but are then rather an incidental symptom and in no way characteristic.

This practically finishes what I have to offer with respect to hallucinations, and in conclusion I will briefly summarize what

has already been stated. Hallucinations are not new creations; they are composed either of present or of latent memory-pictures or ideas, and are accordingly designated concomitant or spontaneous, respectively. They are not due to an external stimulus, but to one within the sense organ itself—one acting on its sensory tract or the sensation cells of the brain cortex. Hallucinations may affect any or several of the senses simultaneously, and influence thought and action according to their contents and the importance ascribed to them by the patient. They may be due to toxic conditions—whether caused by drugs or infectious diseases, disorders of nutrition, the effects of extreme heat or cold—and often accompany the functional neuroses. They are particularly common in paranoia and dementia in their various forms, but occur more rarely in the effective psychoses.

CLINICAL CASES.

VII.

THE PATHOLOGY OF CHRONIC ALCOHOLISM.

By HENRY J. BERKLEY, M. D.

In very recent years studies of the pathological brain, pathological in the sense of having during life undergone some morbid process that ended in the evolution of an insanity, have been pursued with a vigor and thoroughness before unknown. While the results obtained from these researches have not been altogether constant in their character, large additions to our knowledge of numerous morbid conditions have been obtained, sufficient to place some of the diseases on a comparatively firm anatomical foundation, as well as to separate a few, that have common clinical symptoms, from each other and allow of a differential classification. Thus the arterio-sclerotic atrophy, the diffuse syphilitic processes affecting the brain cortex, the endarteritic lesions ending in local erosions of the cortex, have all been differentiated and distinguished by the aid of the microscope from the true forms of dementia paralytica. Many of the degenerative psychoses begin in vascular alterations, in others proliferation of the neuroglia seems to be an essential factor in the evolution of the alienation, while in still others the brain cells undergo a degeneration apparently caused by the presence in the circulation of an irritant toxine, which destroys the perfection of cellular metabolism. Again two or even all three of the essential component elements of the brain may be involved at the same time, the issue being an alteration of the cerebral tissues, which, while fairly readily recognizable, admits of doubt as to the origin of the primary one involved and, incidentally, which were the ones secondarily implicated.

In respect to the lesions induced by chronic alcoholism; between the ideas of Alzheimer, who believes he is able to detect

the presence of a morbid process in the alcoholic brain before intellectual and moral defects are clinically recognizable, and the majority of pathological investigators, who are unable to find any essential difference in the brain substance of the alcoholic and non-alcoholic subject, there is a deep chasm which seems impossible to bridge at the present time. That comparatively gross histological changes are now and then met with is evidenced by many examinations, such as the present one, in which extensive lesions both of blood-vessels and epiblastic elements are to be found. I am inclined to believe that many observers are too skeptical as to what they see in the brain tissues, and pass by lesions which, because they are fine, and their correlation to mental functions is uncertain, are discarded as of no value, while in truth they are the necessary feature of the process.

J. K., male, æt. 53 years, laborer, was admitted to the City Asylum, December 21, 1897, suffering from chronic alcoholism.

No details could be obtained of his family history. From youth onward he had led a most dissipated life, and in later years had been a constant inmate of almshouses through the drink-habit, which had not lessened as he grew older. When received at the hospital he was very weak, unable to stand, and, above all, suspicious, even to the refusal of food, saying that it was poisoned. These persecutory ideas were accompanied by various hallucinations and delusions. The room was filled with witches, who tormented him by inserting needles and knives into his flesh; there were bayonets stuck upright in the floor to pierce his feet in unguarded moments; negro women were constantly at work removing his white flesh and replacing it with black; and he had other similar paræsthetic delusions. The facial expression was depressed. The articulation was defective, blurred in character. Nutrition poor; sleep fair.

The physical examination showed a very much emaciated man, having every appearance of being upwards of 70 years, with numerous bruises and recent scars about the limbs. The skull was brachycephalic (+ 81). Lungs normal; mitral sounds slightly accentuated, first aortic normal. There was a noticeable diffuse sclerotic degeneration of the peripheral arteries. The pulse was feeble, the circulation much impaired. The deep reflexes were exaggerated, the knee-jerk particularly showing a crossed reflex.

The muscles offered a certain plastic resistance on flexion and extension, which apparently was involuntary. No inquiry into the condition of the special senses could be made.

Resistance was obstinately offered to all attempts at examination. Constant automatic movements of the extremities were made. The mental reduction was very great, and no coherent statements concerning the patient's personal history could be obtained. The urine showed traces of albumin, as well as granular and hyaline casts.

Under improved alimentation and rest in bed, the man's strength improved somewhat, but soon after he relapsed, the lower extremities became œdematous, and on the morning of February 19, 1898, he was paralyzed (right hemiplegia) and died within a few hours.

Autopsy (summary) February 20, 16 hours after death. There was marked rigor mortis of all the limbs. Pupils evenly dilated. Purplish discoloration of dependent portions of the body. Lower extremities œdematous as high up as the ankle. Abdomen contained some fluid.

Brain.—Weight, with soft membranes, 1430 grams (œdematous). Beneath the dura mater on the left side was an extensive blood clot, covering the whole convexity of the cerebrum, and extending to the base of the brain. The dura was not thickened; the pia over the right half of the cerebrum was gelatinous, milky, with numerous contorted vessels visible in it. On section, beneath the thickest portion of the blood-clot, the cerebral substance was pinkish; elsewhere the normal gray appearance of the cortical matter was preserved. The ventricles were considerably dilated and were surrounded by white matter much denser and harder than that of the adjacent tissues. The basal and meningeal arteries were somewhat thickened and showed here and there foci of atheromatosis.

Thoracic cavity.—The pleura was adherent to the lung over nearly the whole of the left side; both lungs were emphysematous, the bases congested but crepitant throughout; the pericardial cavity contained about 20 cc. of clear fluid.

The heart weighed 270 grams. Tricuspid valves coaptated, but showed patches of atheroma. The mitral valve admitted two

fingers with difficulty; the left segment was thickened and covered with calcareous patches. The walls of the coronary arteries were sclerotic. Left ventricle wall 13 mm. thick; the right 4 mm. on cross measurement.

Abdominal cavity.—There was considerable fluid in the dependent portions. The spleen weighed 85 grams, the parenchyma was resistant to the knife and showed an overgrowth of connective tissue. The liver weighed 1040 grams. It was hard to the touch and nodular upon the surface. On section it was tough and quite light in appearance. The right kidney weighed 75 grams, the left 95 grams. The surface felt hard and nodular. The capsule was firmly adherent. The pyramids were partly obliterated, cortex 3 mm. in thickness. The suprarenal capsules were large and normal in aspect.

Atheroma was not pronounced in the aorta and large vessels, but there was an universal diffuse thickening of their walls, especially of the inner lining. In the arteries surrounding the cerebral ventricles there were numerous points of annular atheromatosis, which in a few had proceeded to complete obliteration of the lumen in segments of the vessels.

Microscopic Examination.—Various portions of the cortex from both hemispheres were preserved in 96 per cent alcohol and in Müller's fluid for after-examination.

Nissl Methylene Blue.—There had been during life an œdematous condition of the cortex, and, as a consequence, the prolongations of the nerve cells are apparently larger than normal and can be traced a longer distance than usual from the parent body.

Among the smaller pyramidal cells, as well as those of polymorphous shape in the lowermost layers, no definite alterations of the neurones can be demonstrated. They absorb a fair quantity of the coloring matter, have the granula distinctly stained, and in the great majority the nucleus and nucleolus are clearly defined. In a small proportion the nuclear ring is not sharply differentiated from the protoplasm, while the nucleolus does not take up any of the dye.

With the larger pyramidal cells of the second and third layers these alterations are more definite as well as constant. The bodies of the cells contain large masses of coarsely granular

metaplastic material, sometimes located at the basal end of the cells, at others situated near the origin of the apical dendrite. The nucleus often lies excentrically. In such cells the whole of the central region of the body is filled with a finely granular dust, which takes up but little of the stain. Along the periphery of the cells are sparingly located stichochrome granula, very deeply stained, yet with the component molecules visible. The nucleus in none of these altered nerve bodies has the usual sharpness of contour; the nuclear membrane, when it can be determined by careful shading, is thickened, while the nucleolus is unstained. In some nuclei two or three fairly large vacuoles appear.

In others of the large cells the alterations are not so definite, the chromatic particles in the central region staining somewhat better, while the nucleus and particularly the nucleolus is perfectly distinct.

Eosin-haematoxylin Sections.—The vessels now come into greater prominence. The straight arteries and arterioles have suffered comparatively little, the intima and media hardly being thickened at all. The nuclei of the muscular sheath, while rather infrequent, are distinct and well stained. The adventitia also has but little nuclear proliferation, and can hardly be said to be tumefied. The capillaries, densely filled with blood cells, are twisted upon themselves, and look as if their walls were ridged, though their nuclei are neither proliferated nor diminished in numbers.

The pathological changes in the veins are much more distinct than in the arterial channels. A morbid process is not everywhere present, but is confined to scattered vessels of medium and large calibre in every level of the cortex.

The lumina of these veins are filled with blood cells; some have corpuscular bodies uniformly scattered through the coagulated mass, while in others the fibrin and cells have separated, the coagula, from the presence of fibrin threads, looking as if the thrombotic plugging had taken place before death. The internal laminae of these vessels have no observable departure from normal conditions beyond being somewhat thickened. Outwardly there is no trace of muscular tissue, but in the place of this layer a greatly hypertrophied tunic of connective tissue elements, entirely devoid of any nuclei, is found. Still outwardly there is a

thinner layer of a less dense character, in part separated from the middle one by a lymph space. This most external layer is fibrillar in character and holds a few round nuclei deeply stained by hæmatoxylin. Along the margin of the extravascular lymph space, and penetrating into the external layer are deposits of hematoidin crystals.

The lymph spaces around all the cortical vessels are much dilated and contain quantities of hematoidin and granular debris. The vascular neuroglia system is also implicated, the bodies of the cells being swollen and unusually distinct, while the pseudopods attached to the margin of the perivascular spaces are numerous and unusually visible.

The cytoplasmic bodies of the pyramidal cells stained by eosin-hæmatoxylin offer nothing of a distinctly pathological character. In a considerable proportion of the pyramidal cells the position of the nucleus is eccentric. It also has a thickened membrane which absorbs unusual quantities of the dye. The nucleolus takes up neither hæmatoxylin nor eosin, but appears as a vacuole. The chromatin threads, passing from the central regions to the periphery, on the other hand, are distinctly stained by hæmatoxylin.

Safranin.—While the majority of the large nerve cells of the cortex have a nucleus showing a membrane, clear caryoplasm, nucleolus and chromophilic particles; others absorb too large an amount of the dye and appear as homogeneous bodies. In these the membrane is irregularly shrunken, the caryoplasm deeply stained, the chromatin particles are invisible. Frequently the whole nucleus is driven to the periphery of the cell.

In the cellular protoplasm quite as definite alterations may be noted. The substance has shrunken within the lymph space to an unusual extent, though showing little coarse granulation. The largest cells have masses of metaplastic material, occupying, in many instances, from one-half to two-thirds of the cell body, while the remaining portions of the cell have the protoplasm ill defined and granular. The periphery of the cytoplasm also shows a greater absorption of the dye than elsewhere. Vacuoles were now and then discovered.

Hæmatoxylin-Safranin.—With this stain, like the foregoing one, nuclear alterations assume a considerable importance. In

a majority of the cells the nucleus is normal, but in another and very considerable proportion the vesicle is shrunken, irregular, even of longish shape and is dyed an uniform deep blue-black. In other cells not so far degenerated, the caryoplasm is tinged blue and has a glassy homogeneous appearance, in which an indistinct chromatin thread may now and then be noticed. The nucleolus is very deeply stained and is large. The nuclear membrane is indented and thickened.

Chrome-silver staining shows less of the tumefaction of the podasteroid glia than hæmatoxylin sections. The long-rayed glia elements are apparently not proliferated nor is there any other noticeable alteration in them.



RESULTS OF FIVE YEARS' EXPERIENCE WITH CO-
OPERATION BETWEEN STATE HOSPITALS FOR
THE INSANE: MAY IT BE PROFITABLY EX-
TENDED TO OTHER CHARITABLE INSTITU-
TIONS?¹

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Through many years of legislation and various statutory enactments the State has created by its sovereign power a vast eleemosynary system which is supported by public taxation. Its creation represents an enormous aggregate expenditure and its maintenance a vast annual expenditure. In addition to the institutions maintained by the State are others, created and supported by municipalities and counties, and by voluntary contributions or endowments. Fundamentally, they are all a tax upon the people. If we go no further than the first-named class, we have sufficient material for our present consideration. When I said the State had created a "system" I spoke incorrectly, for it is not strictly true. The State has rather built up a large number of units without system, and it is only in recent years that any order has been evolved from the more homogeneous units. Enough experience has been gained from these few years of experimentation with organized cooperation upon which to base larger endeavor, if not to systemize this vast business which the commonwealth has undertaken in behalf of the welfare of society and the taxpayers. If any combination of capital were to conduct its business as the State has done in the past

¹Read at the First New York State Conference of Charities and Correction, at Albany, N. Y., November 22, 1900.

half century, and in a degree is doing at the present time, it would soon disorganize, or at least fail to earn dividends in the present era of competition.

The purely commercial aspect of the problem which besets the State, in dispensing its benefactions through its various institutions, is one thing; the ethical relations of the State to the community in which the institution is located, is quite another; yet the two are inexplicably mixed, and ever will be as long as local influence and management are paramount. I can well remember a locality which had been barren of so-called State patronage till an important State institution was awarded it, which the community appeared to estimate as a due reward for its persistent majorities to the party in power. Hence, it was claimed by many well-meaning persons that its construction ethically belonged to local contractors, and the furnishing of its supplies to resident merchants. If provision of material and labor were open to wide competition, what possible benefit would accrue to the community from its location? In the location of units also, the geographical element, or the fair distribution of plums, cuts a greater figure than important or essential sanitary requirements, or proximity of supply to demand. A not infrequent argument is based on "our turn." How many sad examples of this diversion of public funds from public needs may be seen in this fair State and in others. In these errors, moreover, it is not political favoritism which should bear the blame, for it enters in a small degree. It is rather community interests against the welfare of the whole commonwealth, regardless of party, which prevents the application of scientific as well as common sense in the settlement of the State's important business. Equitable distribution of patronage on a geographical basis has done more to pervert the primary designs of the people than any privileges dispensed by the party in power. There are too many illustrations patent to every member of this conference to require mentioning names or localities. We see them from Lake Erie to Montauk. If, then, the ethical demand of communities is to be an element in the State's business, its perfection and simplification are impossible, and it has now progressed as far as can be reasonably hoped. From the determination of these important questions, as well as the ruling of practice and ex-

penditure placed in conservative managing bodies having ample power and freedom from local interests and prejudice, great gain may be anticipated.

One of the State's chief efforts toward systemizing its business was the combination of its various hospitals for the care and treatment of the insane into a system under direction and supervision of a State Commission. By endowing this Commission with extraordinary powers, it made it possible to coalesce the several institutions—now fourteen in number—into a concrete whole, and to establish a system which may be properly so called. It gave the power to enforce cooperation, and I desire to emphasize my belief that cooperation can never be gained advantageously without enforcement. Formerly, each hospital was independent of the others, and was governed by individual theory or tendencies, the executive head practically dominating the management through the managers' dependence on him. It must be admitted, however, that this did not lead to abuses in any great degree on account of the superior talent the management, as a rule, was fortunate in selecting and retaining. But the opportunity for notorious practices existed, with no restraining power short of the courts and legislation. With the uniting of the institutions under a Commission having executive as well as reportorial powers, there were at once begun cooperative measures which, though not yet accomplishing possibilities, have resulted in a gain that establishes the wisdom of its creation.

It is now, broadly speaking, five years since the State, with the laws transferring the New York and Kings counties asylums to the lunacy system, under the provisions of the "State Care Act," gathered under its care and support all the institutions maintained for the dependent insane. This law, which will ever stand as a monument of the progressive spirit of our commonwealth, was revolutionary in its treatment of supervision and management of the institutions within the jurisdiction of the State Commission, by transferring from local boards of managers to the Commission powers which had heretofore been held by the former, especially in the power of directing and determining expenditures. It must be admitted, in light of custom and practices which had held from time immemorial, that the functions bestowed upon this central supervisory body seem arbitrary, if

not autocratic; yet legislative requirements submitted the acts of the Commission to such clear public view, as to make a safeguard far exceeding any previous checks on a public service. Besides the institutions, in which every dollar expended has its purpose, its purchase power and its application intimately known, two other State departments supervise expenditures and have a power of control. The writer admits a former skepticism, now in the light of experience wholly removed, as to the advantages which would accrue from this great change. As before stated, the power of enforcing cooperation has proved to be the most valuable, I believe, of all the functions bestowed upon the Commission. Metaphorically speaking, the hospitals have put their heads together—perforce perhaps—have reasoned together, have instructed each other, and, finally, have done for all what has seemed by consensus of opinion and experience to be the best for any one. The principle has been that if a certain process is advantageous on Long Island, it should be of equal advantage at Buffalo, and although there are exceptions to this rule, they are marvelously rare. It is almost incredible how widely the hospitals differed from each other in administrative detail, when it is considered that the functions of all were precisely alike—when the creation, the purpose, the design and the practice of all were to the same ends; and it cannot be said that in time they would have come together, and would have perfunctorily reached the same results as now obtain, for experience shows that no progress had been made in that direction during all the years when opportunity existed. It is not my purpose to criticise the former administration of State Hospitals, for this would mean, in my estimation, undeserved self-criticism. I believe there were institutions as economically administered and as purposeful before as since enforced cooperation; but I *do* mean, and I state it fearlessly, that the average, the whole, has been leavened by the best found in each, and herein lies the meat of the whole matter. Apply what is best to all. Formerly each builded largely on its own experience. Now the best, wherever found, is applied to the whole.

A very potent argument, and one which I personally used without success, was that uniform and enforced practices were subversive of original and independent improvement, reform

and advance, by smothering all ambitious effort in arbitrary rulings. Experience leads me to withdraw this claim. No ambition can be more elevating than that to devise practices which have a merit sufficient to enforce their adoption by virtue of it. It has been shown that a progressive executive officer may apply his reforms more widely and effectually, at least those which pass through the crucible of criticism that now purifies every proposed measure submitted for the State Hospital system.

The most valuable feature of cooperation, in my estimation, is experience—or rather the applied results of experience. In such combinations as are represented by a large State Hospital or any large charitable institution, we have all the operations of an independent community, governed by rules and regulations which are the outgrowth of experience. Both economy and efficiency depend largely, if not wholly, upon the value derived from experience, and though there are well-established rules and methods which in a sense are dogmatic, there are constant changes and modifications which experience proves are valuable and desirable. If the institution depends on its own experience for lessons, its progress is necessarily slow, but if we take a large number of units each contributing its share of "errors made by neglecting obvious truths," the collective resultant has a value in proportion to the number participating. In the days now happily never to return, a State asylum was sufficient unto itself, and would continue the employment of some method which the experience of a neighboring institution, perhaps a few miles distant, had rendered obsolete. The "State Care Act" provided for the association of executive officers, and for monthly—now bi-monthly—conferences of medical superintendents and managers with the Commission. These conferences are really experience meetings, and have been productive of much good. The administrative officers bring their burdens to this meeting, and lay down their failures and successes before their brothers, for advice as well as lessons. They often go away enlightened and relieved, thankful for this opportunity. If a question arises, it receives the consideration of a number of individuals best prepared to solve it, and if a solution is not forthcoming at the time, each takes it home for experiment, and the subsequent collective experience seldom fails to settle the most vexatious inquiry, and

all benefit alike. In other words, the most skilful employment of the joint-stock principle is involved in this cooperative system, and affords the most extensive application of experience collectively gained from the phenomena of hospital management. It may, perhaps, truly be said that occasionally universal application of a rule, evolved from a mass of experience, results in a loss to some individual hospital or unit. But political economy teaches that what is lost in separate efficiency is far more than made up in the greater capacity of the whole, or in united action. That the compensation of united endeavor has been ample in the lunacy system of New York, results prove beyond cavil. The capacity for cooperation, which is a peculiar characteristic of civilized peoples, tends to improve by practice, and becomes capable of assuming a constantly wider sphere of action. John Stuart Mill states "there is no more certain incident of the progressive change taking place in society, than the continued growth of the principle and practice of cooperation."

It is customary to spell the success of an undertaking with dollars and cents, and this is particularly true in the work of charity and reform, or where the taxpayer's policy is frequently influenced by the rates. An apt illustration of this was the serious attitude in which legislators discussed the proposed "State Care Act," which brought out an opposition founded upon economics, because it cost the State \$3.00 per week to maintain an insane person which some counties were doing for one dollar and even less. The quality of the doing seemed unimportant. For this class more particularly, I am pleased to report that the per capita cost for the insane in the State institutions has been reduced under State care more than \$50.00 a year. For the year previous to the State assuming charge of the maintenance of the insane—1892-3—the annual per capita cost was \$216.12. For the year beginning October 1, 1896, which is also the beginning of the five-year period under consideration, the annual cost was \$195.52 per capita. For the last fiscal year ending September 30, 1900, the annual per capita cost was \$165.36. In Wisconsin, where the State lends its support to the county system of care, the State pays the counties \$156.00 per year for each patient, exclusive of clothing and several other items included in New York's expenses. Adding the average annual cost for clothing

in New York to the amount allowed the counties for maintenance, Wisconsin is paying \$3.00 per year for each patient more than it costs New York for its high standard of hospital care and treatment for all its insane. If computation is extended to the aggregate saving which has been largely effected, I claim, by the present well-developed system of New York's lunacy department, based on cooperation, and taking the number of insane now under care and treatment—approximately 22,000—the annual difference between the first and the last of the five years just completed amounts to \$663,520. But if we take the annual per capita cost of the insane for 1892-3, or for the year previous to the State's assumption of the care of all the insane under the "State Care Act," as a basis of comparison with the present cost of maintenance and the present number under care and treatment, the State is saving over \$50.00 annually for each patient, or an aggregate saving for the year of \$1,114,520. If figures have any reliability at all, this is a saving in the sense that the State is paying this amount less than it would pay if the former rate had been maintained, and it is plausible to infer that the former rate would have been maintained under the former system. It is reasonable to ascribe the change in rate to change in methods and management. The difference in cost of material for the period named is too small to be accounted a factor.

It is not possible, in the limits of this paper, to detail items of the saving methods based on cooperation, but brief reference is admissible, I believe, to representative efforts towards economics, as well as to improvement in quality of supplies and service. The communistic plan of division of labor was early recognized, by establishing at one of the State Hospitals a coffee plant for roasting and grinding and a spice grinding plant, the latter not so much for the sake of economy as to ensure a pure product. An examination of the spices in use at the hospitals at a given time, when prepared condiments were purchased, showed a variety of adulterations, although stewards had not been restricted from purchasing other than pure goods. In several instances actual ingredients gave no indication of the name of the condiment. Now there is an assurance of a pure product, while the annual cost has declined almost fifty per cent. Coffee is now purchased and imported, ground and distributed to all the hospitals from this cen-

tral plant, with the result that a quality has been maintained at grade Rio 3 as against former grade Rio 7, and used in common by patients, employees and officers, with great satisfaction, while a saving of \$24,000 per annum in expenditure has been effected. If the improvement in quality is considered, the saving may safely be computed at \$50,000. With the exception of one employed person in supervising the process, the labor is performed by patients. At another hospital, soap of all grades is manufactured for all the other hospitals in a well-equipped modern factory. Here also is the advantage of supplying an unadulterated product, besides reducing the annual per capita cost from \$1.14 to 60 cents, or from a total expenditure for soap during 1897 of \$23,648.19 to \$13,102.86 for the last fiscal year. Another hospital makes butter for several of the neighboring hospitals, buying the milk from local dairymen for the purpose. The printing for the entire system is done at two hospitals with well-equipped offices, using patients as compositors. There is annually some addition to the common interests in the line of manufactures, invariably with an improvement in quality and reduction in cost. An advantage almost equal to reduced cost and improved quality, is the employment which these various industries provide for patients. There is no more effective diversion for the insane than agreeable employment, and one of the great embarrassments in the past—and in some degree now—has been the paucity of resources in the hospitals to this end. It is needless to multiply instances where cooperative methods have led to supplying this deficiency, as well as to saving. Perhaps the feature of the cooperative system which has given the best economic results has been the joint contracts for standard supplies. These contracts have been executed by committees of officers from the several hospitals, usually for periods of three to twelve months, and based upon the widest competition. Specifications have been perfected, and the system is now so well established as to have become a routine function, disposing in a most effectual manner of embarrassments arising from purchase by individual hospitals, and disposing of local insistence of patronage. This system, in short, has precisely the advantages which might be expected to accrue from a central purchasing agency, without its possible embarrassments and probable dangers. In addition to the pecuniary result, it

has given the greatest satisfaction in establishing a standard of supplies, which is reliable and uniform. A few items will illustrate the saving which has resulted from the joint contract system. Before its inauguration the per capita cost for tea was 45 cents, and for the past year it was 39 cents, with a higher and uniform standard. The per capita cost for crockery and glassware has been reduced from 38 to 20 cents. Incandescent lamps have been bought at about 25 per cent less than the separate hospitals could buy for, etc., etc. Without dwelling further on the question of expenditure, it may all be summed up in the contrast of the total per capita cost at the present time, and that previous to the cooperative period.

An experiment in closer cooperation than has heretofore been attempted has recently been adopted by five hospitals in and near New York City. They have formed what might be called a co-partnership for the purchase of supplies. They have but one purchasing officer, whose office is in New York City and whose function it is to purchase all supplies for the five institutions. It is assumed that practically the same kind and variety of supplies are used by all, and the only labor in addition to purchasing for one institution is in the quantity bought. As this officer is relieved from the other services required of stewards, he is able to give more attention to purchasing; has the opportunity of watching the market, and can take advantage of commercial fluctuations. It is also intended that he shall maintain a bureau of information for all the other hospitals in the department; inform their stewards from time to time of opportunities which the markets offer, and act for them if occasion demands. This officer will be prepared and equipped to answer inquiries promptly and to the best advantage, and thus relieve the stewards from embarrassment, loss of time and transportation expenses. It may be asked, why this cooperative plan is not adapted to all institutions in the department, but at the present time such an arrangement is neither feasible nor desirable, and may never be. Moreover, the joint contract system effects the same economical results which could only be hoped for by creating another great institution, and escapes its possible dangers. There can be no reasonable doubt, however, that its application to the institutions named will give economical results besides other advantages,

although it has not yet passed the trial period and is not an established innovation.

You may properly assume that results are not to be measured by dollars and cents, or expenditure alone, but can be determined only by the standard maintained in comparison with its cost. This is quite true, and in reply to such a criticism I state as a fact quite evident to the informed, that a higher standard of care and treatment for the insane has been reached in the past five years, coincident with a decreased cost. I may, perhaps, give a more definite impression of progressive results in our State Hospitals under the present as compared with the former system, by quoting several of the medical superintendents of these institutions. It is also apropos, and due to these officers, to state that their loyal and persistent aid has been the chief element of success in the mutual system of hospital administration. They form a scientific and progressive body of men, whose services the State may justly be proud of, and grateful for. It is their exceptional competency that has made the New York institutions the cynosure of other States and countries. The replies quoted are in response to an inquiry of superintendents for an approximate estimate, in percentages if possible, of improvements in service and administration in their respective hospitals, regardless of cost, or more particularly since 1896, under the State Care Act. One superintendent, after detailing the great improvement effected in construction, equipment and extraordinary repairs, says: "The medical service of the hospital has been greatly improved in many directions. A larger force of physicians, in proportion to the number of patients, is employed; ward visitation of patients is more frequent and more systematic, and the records are much more scientific and accurate. The force of employees directly engaged in the care of the sick has been increased and large individual liberty granted the patients, with the result that they are now much more comfortable. In place of three or four general night watchers, there is and has been maintained a complete night supervision of the wards with nurses in sufficient number on duty to attend fully to the needs of the patients under their care, etc. . . . I think a conservative estimate would place the improvement above fifty per cent."

Another superintendent boldly declares that "Since the 'State

Care Act' went into effect, the general standard of the hospital work has improved more than fifty per cent."

Another superintendent of a hospital renowned for its high standard of care, with its former cost for maintenance 75 per cent higher than it was for the last fiscal year, writes: "In my opinion, the service in the State hospitals has improved fully fifty per cent. So far as this hospital is concerned, I would arrange the improvement as follows: (1) The recovery rate has steadily risen, despite the fact that we now receive all sorts of cases and do not transfer the unrecoverable ones as was formerly the case. (2) Attendants are better trained and do better work than ever before. (3) Restraint (mechanical) has been entirely done away with, and seclusion is scarcely ever resorted to; but despite these facts there is greater quietude and better order than under the old system. (4) A great deal more is being done than ever before in the way of furnishing employment and entertainment for the patients. The parole system is used to a greater extent and open doors are found on many of the wards. (5) Improvement in the manner of keeping case-records has resulted in increasing the powers of observation and expression on the part of the nurses, and has relieved the medical officers of a great deal of routine clerical work. Scientific appliances and instruments of precision have been freely supplied, and an ophthalmologist and dentist have been appointed. All of these changes have tended to bring the hospitals for the insane up to the level of the general hospitals, and to improve the purely medical work of the institution. (6) The quality of the food has been improved. There has been a vast improvement in dining-room appliances and in the manner of preparing and serving the food. (7) Marked improvement has also taken place in the method of bathing, the spray bath having been substituted, wherever possible, for the old tub. Taking it all in all, I therefore feel safe in saying that the general improvement may be placed at 50 per cent." I may add to this testimony, that the items of improvement, named by this physician, apply in some degree to all the institutions in the department.

Another superintendent, whose experience covers the old and new, and who fought the present state of things conscientiously and persistently as the beginning of the end of all that was good

and high and lasting in the then existing condition of the institutions for the insane, says: "In all that pertains to the care and treatment of the insane, whether it be in structural provision, equipment, a high standard of repair, nursing and personal attendance of patients, the medical service and scientific inquiry and observation, the personal liberty and diversion of patients, and all that tends toward their cure, contentment and comfort, the quality, the preparation, the nursing and the adaptation of food to the physiological and curative needs of the insane, the clothing of patients, and in all other things, this hospital has progressively and steadily advanced its standard under the present system, and I truly believe this applies as well to all the other hospitals in the department of insanity. If this state of affairs is taken in connection with a steady reduction in the cost of maintenance until the average per capita expenditure has reached \$165 per annum, including transportation from the home to the hospital and to the home again, it is not an exaggeration to say there has been a gain of more than one-half in general results."

Another, of shorter experience, says: "As I have no real information as to methods and administration prior to 1897, it hardly seems I am capable of giving you the precise information you want. However, I can say this, that judging from my experience and hearsay evidence obtained here and from officers and employees, I think the standard of care at this institution has steadily advanced, and when I look at the old round settees which we used to have on the wards, wards that were without adornment, and for many years with whitewashed walls and with wooden beds almost impossible to keep free from vermin, and with the testimony of the older employees that the diet has immensely improved since the new order of affairs, I cannot but think that there is a great change for the better at this hospital."

The accomplished superintendent of one of the most recent institutions, writes as follows: "When I came here in 1896, I found the organization and its management up to the highest standard. The hospital had been built and developed along broad lines, far in advance of anything that had ever before been attempted. My greatest ambition was the maintenance of the standard as I found it, rather than its progression, yet it must

be evident that under the cooperative system there has been a decided advance. The united purpose of the hospital and your Commission have made it possible to improve the service, the diet, personal attendance or nursing and the standard of repairs, at a greatly diminished cost, and I believe this was made possible only under the present perfected system and its careful administration. I know that nothing in the way of improvement has been disapproved by you and your associates, when it has been demonstrated that such would add to the efficiency of the hospital. Nothing that would conduce to the recovery or comfort of the patients has been refused by your Commission. We have added variety and capacity to our means of diversion of patients, which is one of the potent elements of treatment; the diet has been improved in quality of material and preparation; we have added to our laboratory work and to more skilled methods of diagnosis, with ample allowances for instruments of precision; improvement in case-records, in standard of nursing and care of patients, greater medical attention, and clinical study of cases has been marked. The training school has advanced its standard. I might go on enumerating items of improvement which have followed cooperation between the hospitals and the Commission, but will content myself by saying that in my estimation there has been an advance in the standard of from twenty to thirty per cent. This, too, does not take into consideration the reduction in cost of more than twenty per cent. One feature of cooperation which I desire particularly to mention, is the joint purchase of supplies for all the hospitals. This has not only been satisfactory from an economical standpoint, but has, further, given the greatest satisfaction by establishing a standard of food supplies."

But why should I detain you with reiteration of testimony all to the same end? There is no diversity of opinion. All observers reach the same conclusion from our comparatively short experience in mutual helpfulness. Help each other, instruct each other, all learn from the experience of each and each judge wisely from the experience of all, might well be the motto of executive officers of all institutions of charity, reform and correction. The lunacy department is trying to apply these precepts in a practical way, and in doing so has reaped a reward for the State and its beneficiaries far in excess of anticipation.

But like the wise merchant who keeps his greatest bargain for final exposition, I now refer with pride to the great food studies which have engaged the department and the State Hospitals for the past few years, under guidance of the greatest living authority on physiological nutrients—Prof. W. O. Atwater. Here is where cooperation plays a strong part, in dove-tailing experimentation so as to complete a perfect whole by uniting the work of each on separate lines. It is lamentably true that the scientific study of diet for the insane has heretofore been quite neglected. The soldier, the workingman, the pauper and the prince, all have had their food requirements analyzed and established, but the insane never. It is a pioneer work beset with difficulties under ordinary conditions, but the discouragements which would otherwise be a barrier, under the cooperation established in this department, are quite neutralized. The planting of this neglected seed is already giving promise of a rich harvest. It is also gratifying to know that the benefits to be derived from this work will not accrue to New York or to this department alone, but will radiate to other States and countries, and advance the work for other defective classes. Like the enlightenment which any scientific advance creates, its beneficent results are not confined to any epoch or locality.

Not only in the maintenance of the hospitals has the plan of cooperation been successful. In providing buildings and the perennial improvements and extraordinary repairs not technically included in maintenance, there has been a marked decline in expenditure with increase in effectiveness. Building accommodation with its full equipment is now provided at less than \$500 per capita, which is more efficient than former construction at five times this cost.

Perhaps the richest fruit of mutual labor in this department has grown from the cooperative effort to improve the service, and more especially that of personal attendance upon the insane. Heretofore, praiseworthy attempts have been made by several of the hospitals to give systematic instruction to attendants in nursing the insane. A requirement of the "State Care Act" was the maintenance of a training school in each hospital, and further requirements of the Commission resulted in establishing uniform standards in curriculum and examinations. The effect

of this can be seen to-day in a large proportion of trained nurses as ward attendants; trained, moreover, by a strict two years' course of study and observation in nursing bodily diseases as well as diseases affecting the mind. Many of these nurses have gone out into communities in competition with the general hospital product, and in no instance, to my knowledge, with failure. The medical officers of one hospital will examine the nurses in another, and through this cooperative means the standard is becoming quite the same in all and is progressively improving. The frequent references to features worthy of praise in any hospital, in the bi-monthly conferences of superintendents, and through them to their assistants and nurses, arouse a healthy spirit of emulation, which has an inspiring effect easily observed in comparing the service in hospital wards of to-day with those of the former time. I do not mean to imply that there is absolute uniformity of excellence in all the hospitals, but it is much nearer this than could be hoped for under any other treatment. A strong feeling of helpfulness to one another has been engendered in the several institutions, which lends to them all a common interest in good results. A very noticeable result of improved nursing has been called to my attention for several years past in my official visits to hospital wards and examination of patients. This is the comparatively small number of complaints of personal abuse made to me by patients. It is now quite an exception to hear one, and I am always convinced, when such complaints are persistent, that there is something defective in the personal service. The time-worn excuse that complaints are founded upon delusions is now seldom offered. Even if they are, the well-trained psychiatric nurse will know how to allay in the largest measure the apprehensions of the patient.

The scientific work of the hospitals has felt the impetus of cooperative effort, and is practically united by a central institute which guides and directs scientific inquiry to a common and united purpose. Much has already been accomplished, and much more is hoped for in the methods now in course of maturing, to advance the knowledge of the causes and pathology of the one disease which removes the human characteristic from mankind, and which thus far has been the most clouded of all diseases our kind is heir to. In this one feature alone there is jus-

tification for union of means to attain a well-defined purpose of the State in the creation of its hospitals for the insane. If the same system could be applied to the "agglomerate of opaque confusion" which resides in the great mass of eleemosynary creations supported in one way or another in this great commonwealth, what a gain might be anticipated. I do not believe the experiences of the State Hospital system are unique or marvelous. They are what common sense would lead us to expect; are precisely the same methods practiced by carefully managed organizations built up for gain. The business man knows there is nothing more abortive of success than disunion of effort of the several parts of a commercial machine. The State Hospital system has been called a "trust," and it is in the sense that it is a trust committed by the State to the care of its agents. In its colloquial meaning the term embodies the best features which are, in brief, the application of means to effect the greatest good to the greatest number.

And why cannot cooperation be extended to all other institutions maintained for the defective and the wayward? As far as the institutions maintained by the State are concerned, the extension of the system is simple and practical. The civic and endowed institutions present the embarrassment of a great variety of management and forms of institutional government, union of any kind depending upon a voluntary giving up of more or less independence. Yet, properly applied effort, among the various charitable institutions of the cities, might result in knitting them closer than they now are. For instance, the larger cities could have an organization looking to the more material welfare of their institutions than is now afforded by the charity organization societies; or the functions of the latter could be enlarged to embrace executive powers in a small degree, subject to the action of the several managing boards. The establishment of a bureau of information and help, for the thousand and one practical questions which now have a thousand and one different means or ways of solution, might be a step in advance. Every institution receiving municipal aid could be forced into cooperation, but endowed institutions must be coaxed into submission. It is doubtless a troublesome question how to induce the several institutions to help each other by combination of interests. If

I have convinced you that cooperative effort is valuable, as shown by the experience of the State's lunacy department, I have accomplished my purpose, and content myself, in conclusion, with the broad statement that like planting and cultivation will produce an equally rich harvest in all institutional work for charity, reform and correction.



KRAEPELIN'S CLINICAL PICTURE OF KATATONIA.

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INTRODUCTORY NOTE.

Under the general term *Dementia Precox*, Dr. Kraepelin includes a large number of cases of insanity which exhibit in common a tendency to rapidly progressive dementia. Paretics and those showing signs of senile degeneracy are not included in this class. *Dementia precox*, he considers, is dependent upon certain degenerative changes in the cortex and manifests itself in three distinct clinical forms; the *hebephrenic*, the *katatonic*, and the *paranoid*. The last includes the majority of the cases formerly classed under *paranoia*,—a term which he still retains but in quite a restricted sense. His *hebephrenia* corresponds pretty closely to the usually accepted definitions of the term. Kraepelin's masterly delineation of the clinical features of *katatonia* is the excuse for offering a translation of his paper to those who may not have had access to the original.

Definition.—Under the name *katatonia*, Kahlbaum has described a disorder which shows successively symptoms of melancholia, mania and stupor, in its downward course to complete confusion and imbecility. It is distinguished more particularly by the development of certain motor phenomena of a cramp-like and disabling nature—the *katatonic* disturbances themselves.

His masterly dissertation shows that up to the present time all groups, such as *melancholia attonita*, stupor, acute dementia and the like, represent stages, and are in reality only the outward evidences of one single psychosis. Like *dementia paralytica*, this exhibits throughout its course, in spite of superficial differences in the individual cases, a number of characteristic physical and psychical symptoms.

Although I still doubt that the clinical pictures grouped by Kahlbaum all belong together, nevertheless I find myself induced by varied experiences to acknowledge that the great majority of

these cases are examples of one peculiar clinical type. This classification is based in general upon characteristic signs, among the most prominent of which is a mental weakness growing out of a condition of stupor or excitement, accompanied with the appearances of negativism, stereotypy and suggestibility in expressive movements and behavior.

Character of the Onset.—The psychosis begins, as a rule, subacutely, with the signs of a more or less severe mental depression. Often for a long time previously evidences of nerve-weakness (neurasthenia) may be noted. The patients become quiet, depressed, inattentive, anxious, and, consequently, irritable and perverse; they complain of headache, pains in the neck and back, difficulty in thinking, exhaustion, loss of sleep and appetite; they withdraw themselves from their surroundings; they turn to the life of the monk or nun, give up work, and spend a large portion of their time in bed. This stage of uncertain forebodings may vary within wide limits—from one day to a year or more—so that the real onset of the affection cannot be accurately determined. Sometimes the disorder first shows itself by repeated exhibitions of violent ill-temper, which are separated from each other by calmer intervals.

Illusions.—Illusions and delusions now, as a rule, occur. The patients see in the heavens a white star, shining pictures of saints, Christ on the cross, the "wild hunt;" on the wall are presented colored pictures; angels, demons, phantoms, wild animals, serpents, even the devil himself, appear in the room; flames burst forth from all directions; in the food are human heads; worms are in the soup; from outside are brought to the ear the crowing of cocks, the rattling of chains, sounds of music or the wailings of children. God himself speaks to the patient; the devil calls him by name; his own life-history is rehearsed to him. The people about him know his inmost thoughts; they read about him, speak of murder and similar atrocities, or exclaim: "He must come with us." There are revelations, spirit voices, controlling voices, and voices which seem to come from his own belly. If the patient thinks of anything, he hears his thoughts immediately spoken aloud. In his room are fogs, foul air, the odor of a corpse; in his food, human flesh and offal. Electric currents circulate in his body; strange blood is pumped into his head; his

limbs are made stiff; the bed moves; through his nose and ears big frogs creep into his mouth.

Delusions.—The sick man feels himself to be a great sinner; everything that happens takes place on his account; he is the cause of everything. He has not acted rightly; is lost, rejected, deeply sunken in depravity; he brings all about him to ruin; he cannot go to heaven; must fight with death and the devil, suffer temptations, and die for the sins of the world. Satan lives in him, and draws him to hell-fire; he must forswear his religion; is the one of the family chosen for sacrifice on the altar; he has been the destroyer of religion. The last judgment, the destruction of the world, has come; there is war; every one is dead; the heavens have fallen; the house is full of corpses; the whole district is burning up; the French soldiers are coming; all are despatched; mankind has no more blood to spill. The patient is killed or comes to the scaffold; is banished, bewitched; he is obliged to drink the blood of his relations; a vulture is on his window to eat his flesh; his wife is untrue to him.

Dissolute thoughts arise; the patient thinks that he is to be forced to have sexual connection with his sister; he is under the control of mediums who force him to do what they will; he is robbed of his semen. Female patients affirm that they have been ravished; that they have given birth to dead children. The thoughts become even less reasonable; the intellect is drawn from the brain like a rag, the brain is torn, the head is sawn asunder in the middle, a faucet is screwed into the skull; the head is that of a wolf. The patient asserts that he is no longer a human being; he cannot live, he cannot die, nor, on the other hand, can he ever be well again; he no longer possesses any power of thinking; he has coughed up his cerebellum; his stomach has disappeared; his lungs have fallen downwards; his intestines are loose; he is already dead.

Sometimes even now, but as a rule not until later, there are added ideas of grandeur which occasionally push these delusions of sadness wholly into the background. The patient is inexpressibly happy, very rich, possesses ten millions, splendid palaces; 60,000 marks are coming to him from God or a decoration has been conferred upon him by the Prince Regent of Sweden; he has been summoned to appear before the emperor. He is a

celebrated man, a mind-reader and somnambulist, a substituted child, Paul, an angel, Jesus, the Christ-child in the manger, the Redeemer of the world, the Crown-Prince of Bulgaria; he lives for the salvation of all peoples, was born to do battle for God, lives in "Jordan's Heaven," has received supernatural gifts, has made important inventions, speaks four languages, lives on God's word, needs to eat and drink no more.

Female patients are countesses, redeemers of the world, Mothers of God; they are betrothed to fine gentlemen, have sexual intercourse with emperors and kings, recognize their husbands no longer, "have in prospect a man who is noble and of their own rank." One of my patients ran to the mayor to receive an inheritance which she believed had been left with him for her; another arranged the preliminaries for her nuptials with a gentleman, a total stranger to her, who (she affirmed) had by signs declared his love for her. A shoemaker tried to approach rich young ladies who, as he imagined, had manifested an inclination to marry him.

The *consciousness* of the patients under these conditions is generally somewhat clouded. They grasp the conditions around them only imperfectly and are unable to orient themselves clearly. Everything appears to them changed, as in a comedy; individuals around them seem transformed, are not the right persons; they imagine that they are in a house of magic and complain about the confusion and entanglements. *Idea association* is nullified; the *train of thought* is broken and incoherent; the *judgment* is very seriously affected, as appears from their senseless and contradictory utterances. *Memory* is well preserved and the power of *perception* is also often surprisingly good. Persons in new surroundings are usually recognized, even though erroneously identified and addressed as Christ, Judas Iscariot, etc. But now and then false recollections supervene. The patient has been stabbed by his father, who has then collected his blood; he has been robbed by a gipsy woman; he has been shot in a certain garden.

The *mood* of the patients at the beginning of the affection is usually sad and anxious; they are disturbed, sigh, wail, pray for the grace of God, are kept in fear by an uneasy conscience. Sometimes they are excitable, distrustful, gloomy, threatening;

outbreaks of anger of exceptional severity are sometimes observed. But in the intervals between these attacks they may be childishly cheerful and rapturously happy; are generally under the influence of active sexual excitement, and give way to masturbation, obscene speech and touch.

Very striking deviations from the normal in *conduct* and action are wont to occur. The patients stop work, stand and lie about listlessly, run away, stare vacantly into the distance, laugh without cause, start in to do eccentric things, neglect themselves and threaten their companions. Others pray, go frequently to church, remain on their knees the whole day, go into a monastery, suddenly ring the church-bell, desecrate graves, or when in church snatch the holy vessels from the altar. Others, again, will marry, or put on their best clothes and pay calls by wholesale. Many of my patients made attempts at suicide or dangerous attacks on their relatives without any apparent provocation; one tried to burn himself in a barn on a haymow, fearing that the French were coming.

Special katatonic symptoms.—In this first stage of the disease, which in all its chief points agrees with certain hebephrenic forms, are added, with more or less definiteness, those mental states which are especially characteristic of katatonia—the katatonic stupor and the katatonic excitement. In about one-third of the cases at least, these symptoms are developed, quite frequently, without any marked premonitory signs and while the patient is apparently in the best of health.

The *katatonic stupor* is chiefly dominated by the expression of negativism and automatism. The patients become taciturn, sparing of words; they stop in the middle of a word or sentence, and gradually may cease talking entirely (mutism); more rarely they lisp softly some unintelligible word, and may even carry on whispered conversations with themselves or give vent to sudden bursts of laughter. Frequently they commence to speak, but turn away as soon as any one pays attention to them; and if further notice is paid to them, they become silent immediately. As a rule, they cannot bring themselves to write connectedly; they break off after a few letters have been written, or go on at random, making marks on the paper and only produce a senseless scribble. They no longer look up or turn their heads when any one ad-

dresses them; indeed, they may turn directly away from the speaker. In certain cases, however, written answers can still be obtained; or the otherwise dumb patient, when requested, will suddenly sing some well-known melody in quite a good voice. In other respects these individuals are wholly proof against every external influence, do not react to speech, touch or even a pin-prick; only rarely will very energetic stimulation produce flinching, and still less often any active or vigorous resistance. At times a slight blinking of the eye, a deeper reddening or increased perspiration of the face and twitching of the corners of the mouth, during such experiments, or a sudden burst of laughter at mirthful incidents, point to the fact that the patient's susceptibility to impressions is less impaired than his power of avoiding the natural acts induced by the same.

Negativism.—Occasionally, any attempt at interference with the attitude or movements of the patients meets with stubborn and insurmountable resistance. The physician will notice, as soon as he commences to make any change of position in the patients, that immediately every muscle is strained to its utmost. If one presses against the forehead, after removal of the hand, the head moves slightly forward; if one touches the back of the head, the patient tries to oppose the pressure of the fingers. The psychical origin of this firm resistance is most plainly evident in the occasional cases in which the patients make answer to spoken suggestions in a similar way. Thus it is sometimes possible to make a patient go forwards by making a show of turning him around or pushing him back; at other times he will sit down on the night-stool when he is explicitly bidden not to do so; he stands still if asked to move, and so on. In a number of other ways it is clearly shown that opposition to the natural inclinations of the mind is the fundamental point. Many patients will wear no clothes, no shoes, even no shirt, will not go to bed at night, but will lie on the floor under it, pull on their garments the wrong way, turn over the bed-clothes, lie on the counterpane and try to cover themselves with the mattress, strive to push on through a certain door. They crawl into strange beds, pull on clothes belonging to others, bind up their eyes, muffle themselves up, and hold rigidly whatever they have once grasped.

A further good illustration of negativism is seen in the fre-

quent refusal by our patients to take nourishment. They often leave off eating quite suddenly and cannot be induced to continue the meal; they shut their teeth tight and press their lips together as soon as any one comes near them with a spoon. Others will not eat so long as any one is watching them, but allow their food to stay untouched for hours or take some only by stealth. The period of their refusal to eat is apt to end just as suddenly as it began, and is often succeeded by a ravenous appetite. Sometimes the patients begin to eat if they are taken into another room or among new surroundings. Some patients refuse with the utmost stubbornness certain articles of diet, as meat or the food prepared especially for them, but know enough to take by force or fraud the food of their neighbors and consume it with the greatest avidity.

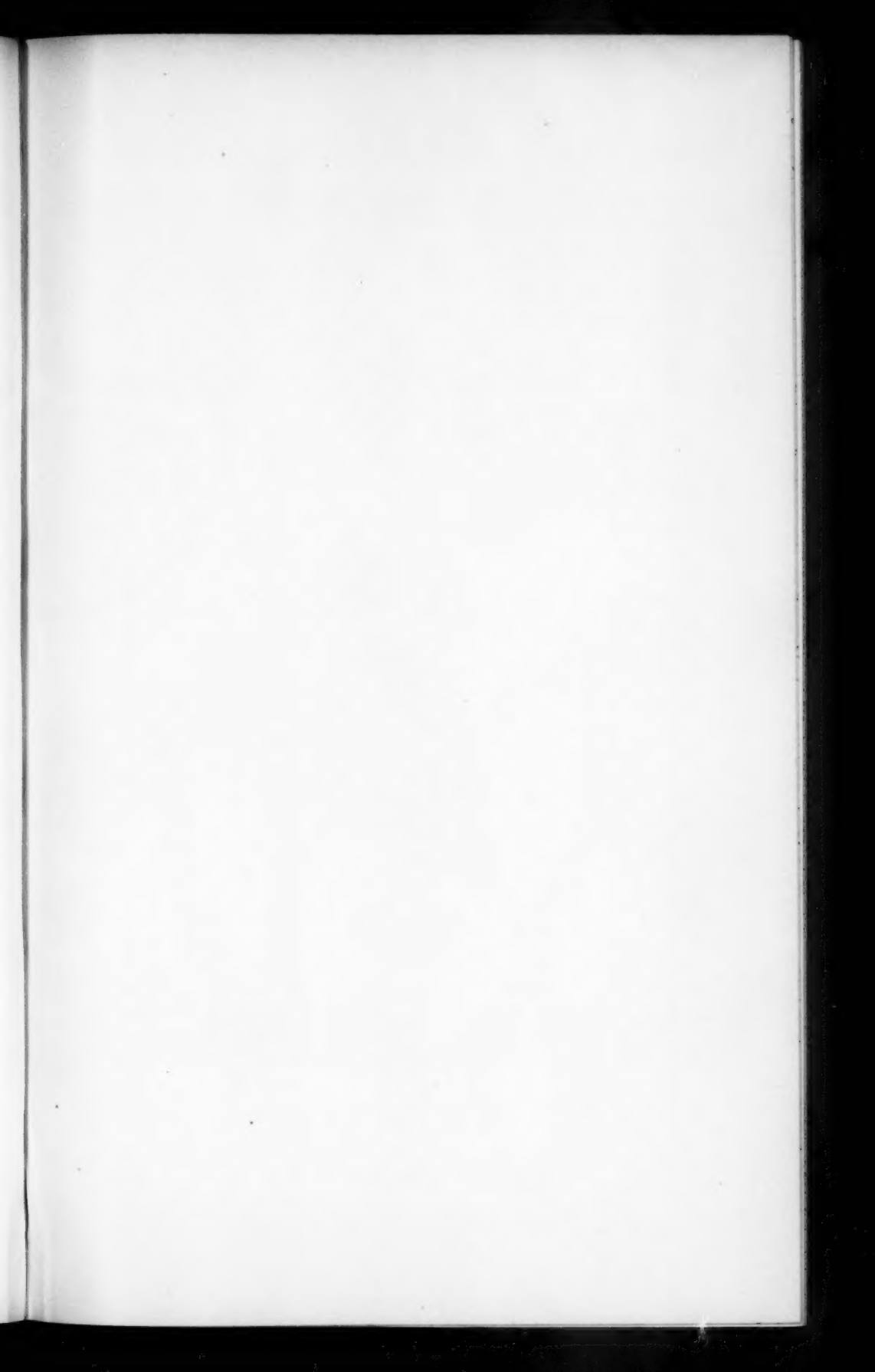
Finally, the negativism of the patients is accountable for their frequent uncleanliness. They often retain their urine and fæces for a long time and then simply discharge them under them, without the slightest change of position in order to avoid the disagreeable consequences. Frequently they cannot be induced to have a movement in the closet, but immediately afterwards will soil the floor or the bed copiously. The saliva is often collected until the mouth is as full as possible and is then suddenly squirted out as if from a fountain; or it may run steadily from the chin over the clothes, partly because the patients, rigid from their mental attitude, do not swallow at all. In other cases, however, one sees patients soil their surroundings most recklessly with their continuous spitting.

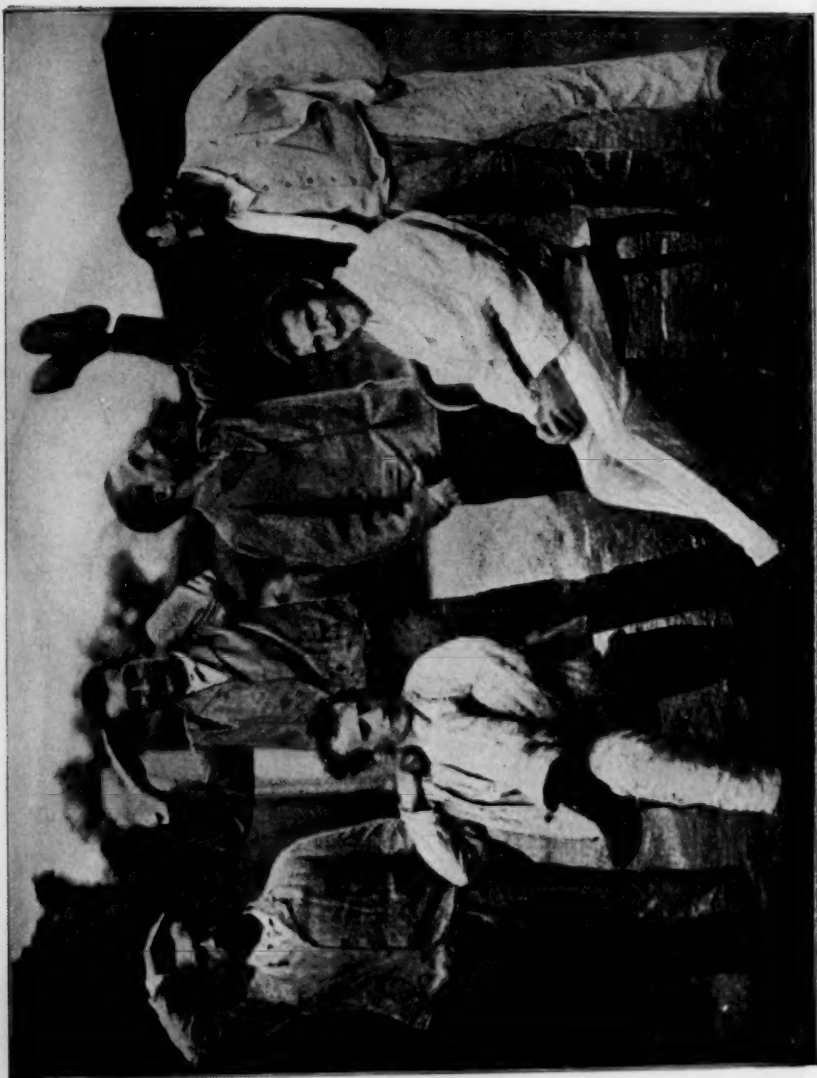
Muscular rigidity.—With the negativism is associated very generally an extraordinary uniformity of attitude and muscle-tension, in consequence of which we see patients remaining in exactly the same position for days, weeks, or even many months. In a characteristic position they may be statuesque, often fixedly bent over, squatting, kneeling or lying immovably, with the head held up from the pillow or hanging over the side of the bed, and the sheet between the teeth. They allow themselves to be put in any position at pleasure; or any one part of the body can be lifted like a parcel without in any way changing the position of the other limbs. One of my patients kept his hands folded convulsively for so long a time that the adjacent surfaces showed pres-

sure sores; another kneeled for years in the same place until, on account of incipient joint-inflammation, it was necessary, despite strenuous resistance on his part, to hold him forcibly in bed. At such times the eyes are either continuously closed or at every approach are tightly shut, the motion being accompanied with strong uprolling of the eye-balls; or they may be wide open, staring into the distance with dilated pupils, the sight fixed on nothing. Winking very rarely occurs. The expression of the features is immovable, mask-like, bewildered, sometimes reminding one of the fixed smile of the Æginetan. The lips are often protruded like a proboscis (snout-cramp), showing now and then slight, rhythmic twitchings. Grinning and grimacing are often present.

Gait.—The patients are apt to exhibit similar peculiarities in their gait. Often it is almost impossible to induce them to try to walk. As soon as one tries to stand them on their feet, they simply allow themselves to fall down in a rigid fashion. In other cases they march about, with the knees kept stiff, on their tip-toes, on the outer edges of their feet, with spread legs, with the upper part of the body strongly bent backwards, with their shirt spasmodically pulled up, slidingly, as if dancing; in short, in any particularly unusual way; but summon all their strength against every external influence calculated to change their assumed attitude. The individual movements are stiff, slow and constrained, as if a certain resistance were to be overcome; or they may be carried out in a jerking manner and then often with lightning rapidity.

Suggestibility.—In contradistinction to these appearances, in which is expressed the general opposition to any change in existing conditions, various symptoms, now coming into prominence, clearly indicate a heightened susceptibility to external impressions. Chief among these symptoms are the more or less protracted periods of *cataplexy*, of which the most typical manifestations appear under these conditions. More rarely, and at most only temporarily, one meets also with *echolaly* and even with *echopraxy*. The patients repeat, apparently wholly mechanically, the words spoken to them or certain expressions acquired by chance; they join in with a song of their neighbor and keep repeating it; they imitate any striking gestures which one makes





in an impressive manner before them (holding up the arms, clapping the hands), or continue for a long time any movement begun by another, such as beating time or twirling one hand over the other. Sometimes they will join for hours in everything which any particular person does in their presence, repeat immediately all his utterances, walk behind him with similar steps, dress and undress with him, and imitate him in other ways.

This remarkable picture which is presented in catalepsy is illustrated by several examples in Plate I. The patients were brought into their extraordinary attitudes and remained so without moving, while they were being photographed in a group; in some a sly smile could be detected, while others were evidently in dead earnest. Of these patients only E was considerably demented, while A, B and C were still in the beginning of their disease. All of them have had remissions with the exception of D. With B the remission still continues at the present time, and E has a second time grown better.

Alternating states.—Both of these, only apparently, opposite states of mind—expressed hostility and entire surrender to external influences—are exhibited by the patients at irregular intervals and entirely independently of each other. Indeed, under some circumstances only one type may be noticeable for weeks or months, but there will always be found periods in which a sudden change is clearly evident. In fact, the rigidity of catalepsy is not very seldom produced by merely appropriate suggestions and vice versa. Refusal of food changes to gluttony without any apparent cause; the patient, perhaps motionless and dumb for weeks, commences suddenly in a very loud voice to utter certain wholly unintelligible yells as “kikeriki;” to shout “hurrah,” to bark like a dog, or with mimic changes of expression to scream a popular street-song. Anon, perhaps, he springs with long leaps across the room, in a flash lifts a window off its hinges, or throws himself with a vigorous plunge into a strange bed, where he remains intractable. Other patients will get up one day and talk as if nothing was the matter with them, demand their dismissal and complain of their detention at the institution; a few hours later they may be found again in a rigid stupor. Evidently the widely different conditions of these surprising changes are to a high degree indicative of katatonia.

Excitement.—Those various secondary katatonic features, which we have designated as the katatonic excitement, play a conspicuous part in the stupor. The peculiarity of this excitement lies in the occurrence of numerous impulsive acts and stereotyped movements. Such an outburst occurs, as a rule, very suddenly, generally after the signs of depression described above. The patients—sometimes in the middle of the night—become uneasy, and confused; they talk, sing or dance vehemently around the room with glistening eyes; they tear the clothes from their bodies; overthrow tables, beds, the stove; expectorate all about them; are suddenly senselessly violent. At the same time commence the peculiar katatonic movements which often form the first alarming symptoms of the mental disorder.

Stereotypy.—The patient's whole body becomes suddenly rigid; he sinks to the floor, remains lying in the position of a crucified person, rolls his eyes, breathes by fits and starts, puffs and blows, rolls himself about, makes movements like those of a serpent; turns round on his tiptoes, rotates his trunk and head, swings and rocks to and fro, pronates his hands with his arms at their greatest stretch, twirls his fists around each other with great velocity. These appearances frequently remind one vividly of hysterical disturbances, with which they are sometimes confounded on account of this resemblance.

The craving for action is further manifested in great restlessness. The patients toss themselves up and down in bed, make continuous wide-sweeping movements with their arms as if they were indignant or as if beating time, write letters in the air, wring or clap their hands, drum on the wall, tap on the table for hours, dance and hop, shuffle and stamp. All these movements are performed awkwardly, stiffly, clumsily or affectedly and solemnly; the individuals seem to make them with no definite object in view; they take no notice whatever of their surroundings and often go on in exactly the same way for hours. Generally, they allow themselves to be overruled only by the exercise of considerable force, and immediately begin again as soon as they get the chance.

Imperative acts.—Most curious impulses are associated with these uniform movements. The patients suddenly bite at the watchchain of the physician, appropriate for themselves with

blind force any particular object, perform the most difficult summersaults, trip and dance about in the most ridiculous attitude and adornment, make leaps into the air, and then with a vigorous run dive headlong over the high railing into the bed. They suddenly climb upon a chair or a table in order to deface it, balance themselves in dangerous positions, throw the bed-clothes about promiscuously, drag the mattress around in a circle for hours, knock every time they pass a particular spot on the wall, or stand naked with outstretched arms upon the night-stool. Others imitate the evolutions of soldiers, go through a drill as if they had the most urgent orders from the colonel, leap about the house until completely exhausted, creep around on the floor, leap to and fro, making vigorous thrusts as if engaged in a sword-duel, dance about the room with the door which they have lifted off its hinges, hastily thrust aside every hindrance, unexpectedly lift on high a harmless companion or give him a sounding box on the ear. Repeatedly one may see them with untiring perseverance retrace the same course, or wander in a circle, so that their tracks are soon as evident as those of an animal in a cage. Frequently they keep blindly, senselessly, trying to get out, untiringly knock on the doors, make almost constant attempts at self-destruction as if from compulsion. Many patients tear their skin with their nails, pull out their hairs and hold them up to a flame, bite themselves on the arm; one jumped while singing into the river Neckar.

Self-mutilation.—All the above-mentioned, very diverse acts are accomplished with the utmost vigor and recklessness, so that it is almost impossible to hinder the patients from carrying out their intentions, so dexterous and quick are their movements. In consequence of this, there sometimes occur large abrasions, trivial or even severe wounds, and since the patients pay no regard whatever to their limbs, the open wounds are always injured again and any restraining bandages are straightway removed.

General behavior.—Usually the patients are very filthy. They pass their excretions under them; pack their fæces together, eat them; lick up the urine from the floor; urinate in a slipper, in the spittoon; stuff bread into the anus; spit in the soup, on their bread and butter and in their own bed; drink the bath-water; wash

themselves with urine. Sexual excitement manifests itself in the most abandoned masturbation, the movements of coitus, obscene expressions in talk, in an inclination to kiss, and to grab at the genitals of others.

Another very special characteristic of the katatonic state is found in the distinctively expressive motions of the patients. Among these belong the stilted gestures, the grimaces, the senseless shaking of the head and nodding, the monotonous howling, the roaring, crowing, jodeling, singing, shrieking in falsetto, squalling and humming, and the continuous unrestrained laughter. The *speech* soon becomes scanning, rhythmical, of very unnatural tone, and then takes on a singing or commanding character; again it may be precipitate, jerky, and soon interrupted. Sometimes it degenerates into a series of senseless repetitions of clearly enunciated syllables, with rhymes and tunes; or the words are abbreviated, the end syllables being left off and certain letters purposely inserted. One patient always spoke of "Soktor" (Doctor), "Notessor" (Professor), "Neistesnank" (Geisteskrank). As a rule these expressions have no relation whatever to the questions put to the patients or to the subject in general. As an example of such senseless talk the following sentences are offered: "I cannot allow that I am 'benollen' and 'betollen.' Do you know that I was wholly insane and perhaps am so still? If it is a lord grand duke or king or kaiser—if it is the voice of the judgment or who it is. The good God of Heaven comes also and if it is only a dog or a fly, or a piece of bread. I do not know if I have a fish in my hand or a serpent or what clatters or what goes or stays. I had as lief be out of the world. From below and above can no one become 'betollt.' My nose ought to be already stuck into Jesus Christ and everything be turned over to me. They all clatter and stick into God's anus. And if the beloved Arch-Duke is over there, then he every once in awhile does stick it into his anus and makes a mess of glue therein."

One observes new word-formations; the recurrence of peculiar expressions as "betollen," "klappern," "verafern," sounds devoid of meaning; the lack of all connection in the thoughts and in the formation of sentences; finally, indications of ideas of grandeur and of feeling sick. The utterance is accordingly variously



Handwritten text in a cursive script, likely a sample of a patient's writing. The text is arranged in approximately 15 lines, showing significant repetition and a dense, somewhat illegible flow of characters. The script is written on a rectangular piece of paper pasted onto the page.



affected; the patients whisper, grunt or speak in a falsetto voice. In certain cases agrammatism is noticed, inasmuch as the patients appear unable to form sentences and speak only in infinitives.

Verbigeration.—Finally, very generally here as in stupor, the symptom of verbigeration, already mentioned above, occurs, in which, as in many of their other motor phenomena, the tendency of the patients towards stereotypy, towards the repetition of similar impulses, is very plainly evident. Often some wholly meaningless sentence, as "The crucified Krex in an unkrex house," or single letters are repeated for hours and days uninterruptedly in the same tone, often rhythmically; then they are shrieked, whispered, or the patient sets them to a certain tune. Occasionally these individuals make mistakes in their sentences, or a word picked up from their surroundings crowds itself into their talk; thus their phrases gradually change, the effect being sometimes noticeable only after some hours.

Writing.—In their written expressions also the verbigeration comes to light in the endless repetition of similar flourishes, numbers, letters, words and phrases. These are usually associated with incorrect spelling and punctuation. Suddenly, unexpected fancies bring about very senseless insertions or the leaving out of signs and words necessary to the sense. The execution of the writing is at one time slow, hesitating, interrupted in the middle of a letter; at another, quick and easy or at the usual rate. The pen-pressure likewise changes with irregular and sudden gradations. Many patients write mirror-writing. As instances of katatonic writing, the following examples are given here. The first shows, both in form and sense, strained stereotypy with slight and gradual alterations, while the second, besides indications of stereotypy, exhibits most astonishing carelessness.

Katatonic stupor and excitement, despite their external differences, are evidently closely related conditions. In the course of the disease we see them frequently succeed each other, but with no definite regularity; thus the excitement seems to occur somewhat more frequently than the stupor. But even in the numerous cases in which only the one or the other condition dominates the course of the disease, there are interposed quite frequently indications of the opposite form. Stuporous patients are suddenly

thrown into the most unreasonable excitement, which continues for some minutes or hours, after which they sink back into their former state of apathy. Conversely, we see the excitement occasionally giving place to a more or less severe, stuporous condition with catalepsy and negativism. Modified forms of these phenomena are widely different in the individual cases. The stupor may sometimes be indicated only by a paucity of words, absent-mindedness, and apparent sleepiness, while the excitement may vary from a childish unruliness to complete recklessness and even to dangerous fury.

General mental state.—Throughout the development of these manifold symptoms the consciousness is doubtlessly somewhat beclouded. Nearly always, indeed, the patients grasp certain ideas pretty well, even when one cannot directly demonstrate the fact, although they usually have only a hazy conception of their situation and of what is going on around them. This, however, is partly due to the fact that they still continue to observe, while not at all interested in their surroundings. They frequently, therefore, mistake the identity of persons and do not know where they are, but occasionally one is surprised to find that they know the names of the waitresses and of the other patients, that they make a joking remark, complain about some occurrence, give a sensible explanation of their circumstances, and compose a coherent letter with a good description of their detention and of their desire for removal.

Even a certain realization of their disease is often present. The patients characterize their extraordinary doings as "stupid acts," meaning that they are really insane; they will confess that they are "dull and befogged," or have become "very stupid of late;" a patient may tell you that his head is "hollow clear through." One woman who exhibited the katatonic, stereotyped movements in a most pronounced way, said to me: "But I always have to make such stupid movements; it is so foolish." Another complained that she always had to make grimaces; that some one ought to cure the laughing. Indeed, we learn of the causes of all this compulsory behavior only from the patients themselves—that they did not eat because they dared not, or were unable to do so; that they did not speak because they could not find their words; that a power, an influence, had come over them and

compelled them to imitate everything; that they had to do what any one told them to do; that some one even willed it so; that they could not get any rest until they had done so; it had given them pleasure to repeat everything so often; they had even wished to do so. Less frequently other reasons obtain. A man meant by his expressions that he fell from God whenever he ate; another related that he was drawn to his violent movements "as with a rope," that he had had no hunger.

In spite of this clear explanation of the characteristics of their condition, which most generally are looked upon by them as an evidence of disease, the patients lack almost entirely any adequate comprehension of the gravity of the disturbance. They do not trouble themselves very much about their remarkable conduct in their sickness, and therefore consider themselves perfectly well, as soon as they have in some degree become rational, desiring to go home without delay and directly against the best advice. Furthermore, very frequently, during the periods of stupor as well as of excitement and even after their disappearance, there arise all sorts of illusions and delusions, as we have previously mentioned.

The *mood* of the patients after the first severe periods of mental agitation shows no very marked disturbance. Taken as a group, these patients, along with their peculiar behavior and their false ideas, are for the most part markedly apathetic. Threats make no impression upon them whatever; at times they calmly stretch out their tongue at command, if one tells them of his intention to cut it off and approaches with a knife or scissors. On the other hand, one frequently observes, in irregular succession, childish whining, irritability, foolish tantrums and convulsions. Far more seldom, and then generally in the first stage of the disease, there occur states of anxiety which in particular cases may reach an extraordinary intensity.

Late stages.—The termination of katatonia, in 59 per cent of my cases, showed itself in a peculiar developmental imbecility. The excitement subsides, the marked rigidity of the stupor passes away, the illusions and delusions retire into the background; but the patient is not well, for there now appear unmistakable signs of mental weakness. He has become blunted and *apathetic*, has lost his spiritual activities, takes no interest in his surroundings,

his relatives, or his future, but passes his time in a state of mental twilight without desire or effort. However, he still is in a condition to grasp to some extent and understand simple things, and occasionally affords evidence of his former knowledge and skill, plays chess pretty well, is conversant with the map, is especially serviceable in rooting up trees, but learns nothing new, has no memory whatever, but "a plentiful lack of wit," no sense nor comprehension. He works without persistence and unintelligently; the intention is good, the execution poor; he is unable to do anything independently; is no longer neat and orderly; plays with pictures like a child. Many patients are willful, reject interference, are self-centered, spend a large part of their time in bed, say nothing or murmur unintelligibly to themselves, are filthy in their habits. Others remain more active, have the merest fragmentary remains of delusions, but are silly, incoherent, excitable and uneasy.

Automatism.—In these latter stages especially, those mannerisms appear whose beginnings are seen in the above-mentioned stereotypy. Among these belong the peculiar attitudes and automatic movements, the walking on a line, the forceful pressure of the widespread fingers on some part of the body, the grasping of the ear-lobes, the pulling out of hairs, the compulsory shaking of the head and nodding, the tongue and lip movements, the gnashing of the teeth, the rolling of the eyes, the grimacing and laughing and the general clownish behavior. In addition may be mentioned the extraordinary modes of dressing the hair, the fanciful way of selecting and putting on the clothing, the refusal of certain articles of diet, the preference for certain doors and beds, the frequent visits to the water-closet, hawking, blowing the nose, hacking, grunting, puffing, snoring, and even certain peculiarities in the manner of eating. These patients hardly ever behave at their meals as ordinary mortals would do. Frequently they eat from their plate with their fingers, help themselves from the dish, hastily cram their mouths as full as possible and then swallow almost without chewing. The spoon is grasped gingerly with the finger-tips, often at the extreme end; the handle is used to eat with; the fork is usually poked about in the food two or three times between each bite; the vegetables are arranged in a row of similar little heaps; before eating the hand is wrapped up

in the jacket; the nose is stuck into the soup; or between each bite, while counting 12 or going through some similar performance, the patient feels compelled to drink one swallow. Another will lap up his soup like a dog or pour it directly into his mouth, spilling a good deal; or he will press the plate close to his face and gradually lick it clean. One of my female patients would hold the spoon quite properly in her right hand, but carried it round behind her head and thence to the mouth from the left side; another hid herself under the bed-clothes during her meal. Quite frequently these individuals will swallow most incredible quantities of widely different articles of diet, and often, also, wholly indigestible things, occasionally even their own offal.

Speech and writing.—Finally, the peculiarities of speech and writing above-mentioned are apt to still remain. Especially remarkable is the frequent occurrence of some disturbance of speech—a confusion which may remain in a most aggravated form even when the patient's conduct is fairly good. For instance, such patients during excitement still readily give vent to a voluble array of mere words, while they may express themselves quite intelligently when speaking calmly. The confusion of speech, however, sometimes grows appreciably better even after existing for years and may at last disappear entirely. This was the case, for example, with the patient who wrote the following letter:

“The sentimental duty of the Welschneureuther citizens requires above all after the grand birthday celebration of his majesty the illustrious King William Charles that he collect his whole spiritual strength, so that their solicitous petition might be justified in the Lord. So forty distinguished veteran patriots in consideration of the abrogation of the statutes of the University of Erlangen have at the present time taken pains to affirm as the first reactive negative in an analogical patriotic sense. Article I. of the Welschneureuther Constitution consisting in combustible war materials ready at hand, to offer for the most gracious disposition of his majesty, further to most obediently present the most debasing actions as having connection with cattle, sheep, and turkeys. In order that now the honorable Imperial Association, by the transference of all those states of mind recommended to your consideration, may not submit any concurrence from the

side of the neighboring states, so swear we by the enjoyment of 'steig' merchandise only each one alone to serve, for drawing a conclusion from the periodical mechanical balance of the 19th century only then to break off, when we in our judgment have been disappointed on account of our High Lord, and as useful advisor of a healthy archæological museum can be acknowledged, etc."

Here the formation of sentences is in some measure preserved throughout, so that careless reading or imperfect comprehension might possibly convey the impression that these silly expressions have some coherence in thought. Any closer examination, however, shows that such an idea is entirely out of the question. The tendency always exhibited by such patients to high-sounding phrases, ambiguous turns of thought, foreign terms and word-coining is not without significance.

Transitory excitement.—In the great majority of demented katatonic cases, periods of excitement are occasionally observed; in some they may occur every few weeks, in others at longer intervals. The patients who have been so long quiet and obedient, more or less suddenly become nervous, dispirited, threatening; they refuse food or suddenly break out into confused revilings, have ideas of persecution from outside, smash window panes, throw their food on the floor, make some senseless onslaught, or attempt suicide. In a little while this all passes away, and then the patients are unable to give any account whatever of the motives for their conduct.

Mild terminal dementia.—Although in about 27 per cent of my cases a very severe grade of dementia was not reached, it is obviously impossible from these data to make a very definite division. The condition occurs in those patients whose illusions and delusions and even the distinctive katatonic symptoms have totally passed away; sometimes they have lasted for years. They become calm, orderly, able to work, and may return again to their home life, perhaps even to work again outside. But they have undergone a most radical change. Their intellectual keenness has disappeared; they are more forgetful, weaker in judgment, duller, not self-reliant, with a total lack of proper vigor or persistence. They have no longer a comprehensive view of things; they cannot direct a business enterprise, or even the affairs of a large

family; do not know how to handle money and give away whatever they happen to have. Many of these patients are quiet, shy, depressed, distrustful, decline advances; others, again, are self-conscious, childishly happy, boastful or fidgety, irritable. Slight transitory periods of excitement are also exceedingly common at this stage; traces of catalepsy, grimacing, meaningless laughter, awkwardness, exaggerated politeness, the manner of shaking hands, of eating and of working, repeatedly demonstrate this. There often occur great lassitude and an overwhelming desire to sleep, so that, wholly contrary to their former habits of life, the patients cannot be roused at all and may remain in bed half the day.

Apparent recoveries.—The lighter grades of the condition now under consideration pass over imperceptibly into those groups of cases which we are accustomed to designate as cured. From personal observation I should judge that about 13 per cent came under this head. In these cases so completely do all symptoms of disease pass away, that the recovered patients can again fill their accustomed station in life as well as before. I must not omit to mention, however, that in some of the cases reckoned in this group, slight evidences of their former sickness are still apparent—somewhat distorted opinions concerning the events of their sickness, twitchings of the face, a preternaturally quiet behavior, imperative movements.

Relapses.—A circumstance of perhaps still greater importance is that, as yet, no cure has continued beyond a period of a few years, and we know that in katatonia severe relapses may occur even after 8 or 10 years and lead to profound dementia. In fact, I have seen a whole series of my apparently cured katatonics relapse, so that for the present I am unable to decide what percentage of the so-called recoveries are really to be considered complete and permanent.

Sudden transitory remissions.—Indeed, such experiences render the *prognosis* in katatonia extraordinarily difficult. In a large number of cases we observe a more or less sudden abatement of all symptoms. The patients are sensible, bright and intelligent, though mostly only for a short time—a few hours or days. The effect of these unexpected and complete remissions is startling. We find an individual who, by his foolish conduct and depravity,

has previously appeared completely confused, all at once calm and fully collected. He knows *time* and *place*, recognizes those around him, remembers everything, even his own silly actions, acknowledges that he is sick and writes a coherent, sensible letter to his relatives. On closer examination, however, one never misses a certain awkwardness of manner, a peculiarly elated or embarrassed frame of mind, indicating the lack of a really clear comprehension of the combined symptoms. These remissions are apt to disappear as suddenly as they have come on. They occur most frequently in the stages of excitement, less frequently and less completely while the patients are sunk in stupor.

Long remissions.—In a fairly large number of cases—about 20 per cent according to my researches—the remissions may continue so long a time that the patients seem to have permanently recovered. Almost always, however, certain peculiarities in their conduct still remain in these intervals, which clearly show that there has not been a complete cure. Among these peculiarities belong, for instance, forced, stiff, quaint, strikingly quiet or retired behavior, irritability, and an imperfect realization of the disordered condition. A female patient of mine, who previously had been a respectable girl, in one such remission gave birth to three illegitimate children, the last of whom she suffocated through carelessness; at the investigation a new and very severe attack of katatonic excitement appeared which finally led to dementia. The relapse generally occurs within the first five years, but may, in certain cases, appear after seven, ten, or more years. I regret that it has been impossible to discover up to the present time, definite characteristics from which one might deduce conclusions concerning the probable outcome of such cases.

Prognosis.—If we consider all recoveries as in a way representing prolonged remissions, the question remains: Which cases afford us an insight concerning the onset of remote remissions, and for how long is one justified to hope for remissions in such cases? Without doubt a sudden onset generally tends to remission more frequently than an attack of more gradual development, precisely as in general paralysis. As an acute onset with active excitement is far more frequent in katatonia than in hebephrenia, we may be justified in giving a more favorable prognosis in the former cases. The probability of a definite improvement becomes

less in proportion as those peculiar manifestations develop, which must be regarded as *grave symptoms*, inasmuch as they have been observed in a large number of cases which have never recovered. Among these belong, for instance, the loss of mental activity, although the patients may still retain their power of comprehension, the unchangeable manners and the stereotypy, and, finally, the periodical intervals of causeless ill-humor and excitement. It is naturally, for the present, only a supposition that the development of these, and perhaps of many other symptoms, point to the certain development of an incurable case, yet my varied experience inclines me to this conclusion. Only a very large number of regular and continuous observations from this standpoint will gradually bring us to a decision on this subject.

Indeed, it is not always easy with full certainty to decide upon the existence of these symptoms. Indifference concerning the events of their surroundings may be simulated by negativism and by the general behavior. Only when the patients, in spite of complete consciousness and without symptoms of negativism, take not the slightest interest in their companions, their relatives and their occupation are we justified in concluding that there is complete cessation of mental activity. In the same way only a stereotypy that is well pronounced and has continued for some extended time, and finally, only those periods of ill-humor and excitement above described, should be made use of in determining the prospect of a cure. These symptoms may appear suddenly at comparatively regular intervals, and after lasting a very short time as suddenly disappear. On the other hand, the continuance of a pronounced negativism with stupor might admit the possibility of a remote improvement. In cases certainly incurable the negativism gradually disappears; yet we meet with instances in which out of a negativistic stupor a partial cure has ensued even after three, five, or eight years. Further research is still needed in order that we may count on probabilities in such cases and not alone on remote possibilities.

Causes of death.—The ultimate possibility is a fatal ending. In certain cases it happens that the patients collapse during the progress of very grave excitement from exhaustion, as well as in consequence of injuries or other accidents. Far more frequent is the development of tuberculosis in these patients as they

lie motionless, breathing very superficially and when it is naturally difficult to keep up the nutrition. In this way the mortality in the final demented stages of katatonia is correspondingly increased.

Pathology.—Alzheimer has described marked changes in the cortex, especially in its deep layers, in some patients who had collapsed with the appearances of acute delirium and who had presented the clinical features of katatonia. The nuclei appeared greatly swollen, the nuclear membrane much wrinkled, the cell-substance considerably shrunken with evidences of degeneration. In the glia was demonstrated an abnormal growth of fibres which embraced the cells in a peculiar way. In a case with a protracted course, Nissl observed widespread changes in the cells which he designated as "granular degeneration." Apparently a considerable number of the cells were already destroyed, but the cortex did not appear at all shrunken. In the deeper layers were situated numerous large glia-cells in process of destruction which, under normal conditions, is limited to the edge of the cortex. Furthermore, the cortex was interspersed with peculiarly pale-colored, large glia nuclei, which frequently were closely adherent to the diseased cells and even appeared to penetrate them, not only at the base, as do the ordinary wandering nuclei, but in widely different situations. In order to clearly illustrate the difference between these two arrangements in Plate IV, are shown a nucleus of this kind inside a degenerating cell and nearby a cell with an ordinary wandering nucleus. This condition might very easily give the impression that "the cells were being embraced," as Alzheimer inferred from the structure of the glia.





JOHN S. BUTLER: THE MAN AND HIS HOSPITAL METHODS.¹

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While the members of this society have daily to consider a wide variety of professional subjects, and at these meetings naturally expect to discuss some phase of a scientific problem, it should be remembered that the successful management of an institution, a matter of deep concern to most of us, calls for a display of art as well as scientific attainments. The personal qualities of a superintendent—his character, his insight into human nature, the mental and moral standpoints from which he views things, his sense of justice and his sympathies, with many other qualities of mind and heart, largely determine his success as regards his power for good in the local community of patients or inmates, subordinate officers and employees, over which he exercises official authority.

The revered Ray, our most notable New England authority upon subjects pertaining to medical psychology, happily drew upon his personal experience, or his imagination, to picture the ideal superintendent and set up a standard by which his associates and successors might gauge their efforts in their exacting duties as hospital superintendents.

Bearing in mind such facts, and conscious of having been influenced by the character, example and precepts of a master in the art of managing a lunatic hospital, I venture to present for your consideration some features of his hospital work, and analyze to some extent his methods and successes.

I refer to the late Dr. John S. Butler, who was for nearly thirty years the superintendent of the Hartford Retreat.

Without doubt "the good men do, lives after them," and I deem it worthy any man's ambition to promote the good which Butler had in his mind and heart concerning "the most afflicted

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of the human family," a phrase he repeatedly used to denote the insane. To perpetuate the remarkable personal influence of this rare man, tributes from his pupils become the more necessary, since he, while never weary in making verbal suggestions to those about him, iterating and reiterating maxims and laws for conduct deduced from his extensive personal experience, wrote for publication very little beyond his annual reports, until his active work as a superintendent was over.

His article, "The Individualized Treatment of the Insane," was published fourteen years after he had retired from the Hartford Retreat, and then the full significance of the term, as used by him, could be appreciated by those only who were well acquainted with the man and his methods.

After obtaining his medical degree, Butler opened an office in Worcester, Mass., where he spent ten years in general practice, before commencing his life work as an alienist. During this time he had received and declined a flattering invitation, presented by a formal committee of townspeople, to return and settle in his native Northampton. This incident is of import, showing, as it does, the respect and affection in which he was held by those who had known him from his boyhood to his manhood.

One incident in his work at Worcester is worthy of notice as showing Butler's character, independence and persistence when satisfied that he was right. His enthusiasm and lively quest for medical knowledge and experience led him, when a medical student in the office of Drs. Hunt and Barrett, to volunteer to take charge of the pest-house when occupied by small-pox patients. He took this step regardless of objections offered by personal friends, and in after years often referred to the incident as illustrative of his experience that knowledge was never amiss or of doubtful utility in a man's life-work. As was the case generally with young practitioners of medicine, for a time his success and prospects in Worcester were far from satisfactory. The older physicians were inclined to resent his advent into their field of practice, and to say the least, were disinclined to treat him with cordiality. Therefore, when he announced the presence of small-pox in Worcester, two of the principal physicians, influenced probably by their hostile feelings toward the young doctor and their desire to stand well with the local authorities and the influential tradesmen, who feared disastrous consequences if an out-

break of small-pox became a matter of public rumor, examined his patient and declared it to be chicken-pox aggravated by the rum given as medicine.

Doctor Butler, sure of his ground, resolutely defended his position and a general battle of opinions and feelings ensued; thus for a time the young doctor attracted an overwhelming amount of public attention. Individual views, however, became so antagonistic, a town meeting was soon called to settle questions of public expediency in regard to the matter. Finally an expert, who had treated a large number of small-pox cases, was sent to Worcester by the Mayor of Boston to settle the controversy. This he effectually did by confirming Butler's diagnosis. I have been personally informed by a gentleman who was at that time a resident in Worcester that Dr. Butler's victory in the small-pox skirmish firmly established him in the confidence and esteem of the public, and that his ultimate success as a general practitioner of medicine there was then assured.

Meanwhile his alert spirit of inquiry had discovered a fascinating field for study at the Worcester Lunatic Hospital. He always attributed his special interest in the study of insanity to the amazement with which he heard Dr. Woodward, the superintendent, give a favorable prognosis in a case of acute dementia, which superficially presented only the most hopeless features. With Woodward's kind permission, he continued to observe and study this case, going to the hospital almost daily for that purpose. In his article "The Individualized Treatment of the Insane," Butler has stated with what keen, refreshing delight he noted the gradual improvement of this man, whose recovery impressed him as a marvelous triumph of medical skill.

Other cases of insanity attracted his attention, and he rapidly acquired a general knowledge of lunacy and Woodward's methods of hospital management. On the other hand, Woodward discovered in his voluntary, enthusiastic pupil those rare qualities of mind and heart which eminently fitted him for lunatic hospital work, and urged him to pursue the specialty. And so it followed that when the Boston Lunatic Hospital was opened, Woodward not only advised Butler to apply for the position of superintendent, but aided him with such strong personal endorsements that he was elected to fill the position.

Butler remained at South Boston about three years, treating the insane under his charge with such consideration and general success that he won complimentary endorsements from all who understood and sympathized with him in his work. He began his hospital career with enthusiastic devotion. In his first annual report he wrote: "The change which has taken place during the past few years in the views and treatment of insanity is the noblest evidence which can be given of the advancing philanthropy of the age." In the same report he reveals the source of his inspiration when he states: "In the management of our patients we have endeavored to adopt those principles of physical and moral treatment which, first presented by Pinel, have been so happily illustrated and effectively applied by Esquirol, Tuke, Conolly, Todd, Woodward and other eminent men." And through life he remained loyal to his master types, true to his early ideals. To the end of his days he continued to hold up the methods and theories of Pinel, Tuke, Conolly, Todd and Woodward, whenever the treatment of insanity was the subject under discussion. Thoroughly imbued with the rational, as well as the Christian, aspect of the humane, tender, sympathetic, treatment of the insane, he personally applied his doctrine, and required his helpers to adapt their actions to his methods.

The first year at South Boston he had under treatment 104 patients. Forty-four were sent to him from the House of Industry; twenty-one from the House of Correction; eleven from the Worcester Lunatic Hospital; twelve from the municipal court and sixteen from the police court. "They were wholly of the pauper class and were the worst and most hopeless cases." How forbidding such constant associations; how discouraging to most men the task of managing and treating such a mass of destitute, unpromising and degenerating humanity. But in that forlorn position Dr. Butler rejoiced at his opportunity—found happiness—in the detailed application of his humane principles, in bestowing gratuitously, for the greater part, his never-failing but wisely-directed sympathy, and in searching diligently these mental wrecks for germs of manhood and reason which he might nourish and perchance redevelop.

"Thanks be to God that a brighter day has dawned for the lunatic," a sentence to be found in his first report, conveys the

keynote of his spirit and purpose. In the same report he adds: "The first duty enjoined upon attendants and assistants is the patient and persevering exercise of that law of sympathy and kindness which has such persuasive influence over every mind and should ever regulate our intercourse with the insane." He reports that "restraint of the simplest kind is rarely resorted to," and "is applied, when necessary, with as much gentleness and as little irritation as possible." Even the rare occasions when mechanical restraint seemed necessary would be less frequent, he thought, had he a "solitary," a strong or dark room, "where the noisy and turbulent could be occasionally secluded and thus prevented from disturbing and exciting others." He reports that he "provided occupation and amusement for his patients as far as in his power," and his resources in this direction, fresh suggestions, new applications of old methods and original schemes seemed, to those familiar with his daily work, adequate for every demand. The garden was a great resort for his patients at South Boston, and walking parties went out daily.

In the second annual report he wrote: "While the recovery of recent cases is the most prominent consequence of our operations, the great improvement in the old cases, though of comparatively less importance, is one which, we think, clearly and fully demonstrates the well working of our system of treatment. During the year there has been a surprising diminution of excitability and a corresponding increase of quietness, and cheerful, ready acquiescence in the necessary regulation of our halls. Our patients have been better able to appreciate and enjoy the benefits conferred upon them, their readiness and capacity to assist in the domestic duties of the hospital have been sensibly increased, and it is now an event of rare occurrence to find their garments destroyed or the furniture of their rooms injured."

He did not depend upon restraint or seclusion to arrest destructive habits. If a woman tore her dress he aimed to stimulate her self-respect and pride. He would provide her with a new dress conspicuous for its pretty pattern or bright colors. And when he saw her thus clad, he would express surprise and pleasure, complimenting her upon her improved appearance, call the attention of the other patients and the nurses to her advance in the grade of classification, thus directly or indirectly suggesting

and fostering in the patient's mind a train of ideas which would create a desire to preserve the new articles. Should the first, or even subsequent trials fail, as not infrequently happened, the old wardrobe would be resorted to or a coarse, strong dress substituted for a few days, or until the doctor had impressed upon the patient his regrets that she had failed to appreciate her improvement in appearance in the pretty dress and its significance as regarded her associations, her future prospects, etc. When such considerations of the untoward results of the destructive habit had been pushed as far as he thought prudent, he would give the patient another attractive costume, complying, if possible, in its selection with the individual's taste or preference, which he had meantime deftly sought to discover by questions, remarks, and a careful study of the case. With such destructive patients he would not yield to defeat, but persevere until successful. It was his claim that all such cases were amenable to this form of tactics. He never ceased to implant in the mind of his patients by such arts new ideas and higher motives. He did not attempt to control by Old Testament schemes of repression or "Thou shalt not," thus and so, but relied upon the clearness and force of positive propositions working in the patient's mind, and thus with consummate skill tempted the morbid intellectual appetite of the mental invalids. He clearly apprehended the philosophy and the practical advantages of the New Testament doctrine "Overcome evil with good," and shaped his whole intercourse with the insane accordingly. He was a man of deep religious convictions, having been nurtured and trained in the Northampton, Jonathan Edwards, school of orthodoxy. From personal inclinations, as well as moved by the example of Dr. Woodward, his immediate pattern, who he states "first advocated, in the early reports of the Worcester Hospital, the importance of instituting suitable religious instructions as an essential element to a perfect system of moral treatment of the insane," he announced in that first annual report of South Boston Hospital that "religious instruction is another influence to which we have looked for beneficial results." Not only was "the weekly service of the Sabbath supplied every Sunday afternoon with few exceptions," but, as he states, he "deemed it his duty to gather as many as practicable together for family worship" early each evening.

His professional zeal and humane anxiety to benefit those uncongenial South Boston patients led him to assemble many from the halls who, with the members of his immediate family, formed "quite a numerous and pleasant social circle," as he described it, which he endeavored to elevate and gratify by varied amusements and entertainments. The sewing and reading circle met on the afternoon of the first and third Thursday of each month, and evening gatherings for cards and other games were frequent. Patients were often invited to his table, and afternoon teas with Mrs. Butler were not rare events in the experience of convalescent and appreciative patients. Fortunately for his patients, Mrs. Butler shared her husband's interest in his work and ably supported his efforts to promote their highest good and the family spirit of the hospital. Dr. Butler appreciated her lively interest in this field and made excellent use of her voluntary services. In fact, she was not a silent partner in the social management of Dr. Butler's hospital. In after years he delighted to dwell upon the subject. He treasured the complimentary expressions her attention to the patients evoked from them, and recalled cases where her motherly, timely work bore the most gratifying fruit. In one of his published articles he cites an instance where a female patient, after recovering, gave Mrs. Butler credit for diverting her mind from suicidal intent and reviving such an interest in life that she made uninterrupted progress towards recovery. He took especial pride in the following tribute which Dickens paid Mrs. Butler's gracious and elevating influence in the hospital. Describing a scene he witnessed at South Boston, Dickens wrote: "In one of these rooms, seated calmly, and quite as a matter of course, among a throng of mad women, black and white, were the physician's wife and another lady with two children. These ladies were graceful and handsome, and it was not difficult to perceive at a glance that even their presence there had a highly beneficial influence over the patients who were grouped about them." Charles Dickens, who could so skilfully analyze human purposes and actions, and always rejoiced in the discovery of a practical disciple of philanthropy, inserted in his "American Notes" this record of his visit to the South Boston Hospital when under Butler's management. "I found it," he wrote, "admirably conducted on those enlight-

ened principles of conciliation and kindness which twenty years ago would have been worse than heretical, and which have been acted upon with so much success in our own pauper asylum at Hanwell. 'Evince a desire to show some confidence and repose some trust even in mad people,' said the resident physician (Dr. Butler) as he walked along the galleries, his patients flocking about us unrestrained." Dickens describes the personal appearance of a chronic patient, the manner of his introduction to her by Dr. Butler, and the exalted delusions she entertained because, he says, "this case will serve to exemplify the physician's manner of acquiring and retaining the confidence of his patients." He notes that patients in this asylum sit down to dinner every day with a knife and fork, and that moral influences alone restrain the more violent from cutting the throats of the rest; then adds: "The effect of this influence is reduced to an absolute certainty, and is found, even as a means of restraint, to say nothing of it as a means of cure, a hundred times more efficacious than all the strait waistcoats, fetters and handcuffs that ignorance, prejudice and cruelty have manufactured since the creation of the world."

"In the labor department every patient is as freely trusted with the tools of his trade as if he were a sane man. In the garden and on the farm they work with spades, rakes and hoes. For amusements they walk, run, fish, paint, read and ride out to take the air in carriages provided for that purpose. They have among themselves a sewing society to make clothes for the poor, which holds meetings, passes resolutions, never comes to fist-cuffs or bowie knives, as some assemblies have been known to do elsewhere, and conducts all its proceedings with the greatest decorum. The irritability which would otherwise be expended on their own flesh, clothes and furniture is dissipated in these pursuits. They are cheerful, tranquil and healthy. Once a week they have a ball in which the Doctor and his family, with the nurses and attendants, take an active part. . . . At an early hour they all meet for their festive purposes; at eight o'clock refreshments are served; and at nine they separate. Immense politeness and good breeding are observed throughout. They all take their tone from the Doctor, and he moves a very Chesterfield among them." This highly flattering account of Dr. Butler's methods in the management of the insane was conceived as the result of

only one visit; but the brilliant novelist was an accurate observer. Then, if his opinion needed confirmation, we have but to read what Dr. Edward Jarvis of Dorchester wrote and published in the *North American Review* for January, 1843. He was a neighbor, and for a long time the acknowledged authority on matters pertaining to the insane in Massachusetts. His testimony is as follows, viz.: "We select for description the establishment at South Boston as we *knew* it under the excellent management of Dr. Butler, because its patients are wholly of the pauper class. Its inmates are of the worst and most hopeless class of cases. They are the raving madmen and the gibbering idiots, whom, in the language of the inspectors of prisons, hospitals, etc., in Suffolk County, 'we had formerly seen tearing their clothes amid cold, lacerating their bodies, contracting most filthy habits, without self-control, unable to restrain the worst feelings, endeavoring to injure those who approached them, giving vent to their irritation in the most passionate, profane and filthy language, fearing and feared, hating and almost hated.' Now they are all neatly clad by day and comfortably lodged in separate rooms at night. They walk quietly with self-respect along their spacious and airy halls, or sit in listening groups around the daily paper; or they dig in the garden, or handle edged tools, or stroll around the neighborhood with kind and careful attendants. They attend daily and reverently upon religious exercises and make glad music with their united voices. Such is the condition of the insane in the city of Boston, and although but twenty-eight out of one hundred and seventy-one have been cured, and the rest will probably wear out their lives in hopeless insanity, yet there is a melancholy pleasure in witnessing the great amount of animal happiness they enjoy, in seeing the kind regards paid to prostrate humanity, the respect shown to the deserted temple of reason. It is only, as it were, twining fresh flowers on the graves of the dead; still it is a grateful sight to the humane and a more certain indication of high civilization than the most refined taste in literature and the arts or the most fastidious of social etiquette."

Through the pressure of the city politics, after about three years' service at South Boston, Butler left the lunatic hospital, expecting to practice medicine in the city of Boston. But when, soon after, Brigham resigned as superintendent of the Con-

necticut Retreat at Hartford, Butler became a candidate for the vacancy. Public recognition of his eminent success at South Boston gave him prestige over his competitors, and he was unanimously elected superintendent of the Retreat in the spring of 1843, remaining at the head of this institution until the fall of 1872, a term of nearly thirty years' duration. Here he found scope for his humanitarian schemes, and great satisfaction in developing that nobly conceived charity.

Upon entering the Retreat he found himself surrounded by a class of patients vastly superior to those he had left at South Boston, as regards social position, moral convictions and intellectual ability. His past experience with the insane, however, had strengthened his convictions, and he resumed hospital work with fresh enthusiasm. The various agencies he found helpful at South Boston were utilized at Hartford.

The practice of daily assembling his patients for devotional exercises, commenced at South Boston, constituted a feature of his management at the Retreat, throughout his connection with the institution, but at the latter place the formal leadership in religious exercises was assumed by a chaplain. He never ceased to look upon this office in a lunatic hospital as important, and in his annual reports referred again and again with expressions of approval and satisfaction to the gentlemen who, in this capacity, had given him valuable assistance in promoting the best interests of his patients. He was especially grateful to Rev. Thomas H. Gallaudet, who officiated at the Retreat for a long term of years. Without question, Mr. Gallaudet "possessed peculiar qualifications for the office," as Dr. Butler stated in the 28th report of the Retreat, where he added that he first became acquainted with him on the occasion of his officiating at the Worcester Hospital chapel the first time he had ever addressed an audience of the insane, and that "the service, at once novel and interesting, made such a profound impression" that it continued vivid in his memory. By this reference we note that Dr. Butler visited the Worcester Hospital on Sunday as well as on week days. The details of the chaplain's duties are described in Mr. Gallaudet's own words as follows: "I attend prayers on week days in the chapel and conduct the religious service there on the Sabbath. I keep up a daily constant intercourse with the patients

in their respective halls, endeavoring to become familiar with their individual characters and peculiarities, and to do them good in the way of religious counsel, pleasant conversation and other kind offices. I visit them in their rooms, especially when sick. I attend the weekly reading and sewing parties of the female patients and their other occasions of entertainment and interest, which bring many of the patients of the institution together, performing at such times such services as are in my power." He was in close touch with Butler and sympathized with him in his "plans for the advancement of the institution, the extension of its influence, and the relief and improvement of its inmates." Butler was naturally optimistic, and this trait was decidedly evident in his religious sentiments. In all his social intercourse with the afflicted and mentally distressed "his efforts were illustrative of those two great commandments of the law—love to God and love to our fellowmen."

His facility in reading human nature enabled him to perceive the obscurity of comprehension in spiritual matters, the false value accorded some isolated biblical injunction, or the false perspective in which mental obstacles were held by suffering ones, and his great heart and tactful command of language would suggest a comforting explanation, a satisfactory answer, or a faith-inspiring train of thought which would do good like a medicine. He had abounding faith in the reward of all true and faithful service, and in the triumph of good. If the way looked dark, he endeavored to produce light by reference to natural phenomena, historical events and personal experience. Grasping the cause for perplexity, he would advance ground for hope and declare that "the Good Lord" would do thus and so; with such assurance his firm, clear faith would become infectious. If the trend of events seemed to favor the triumph of bad men or evil principles, he would deprecate existing circumstances, but always conclude his moralizing with the assertion that somehow, some time, good would result; that in his experience and observation the reign of the devil was always temporary and was invariably overruled for good.

Naturally industrious himself, he endeavored to keep his patients, as well as his subordinate officers, reasonably busy. The robust were urged to undertake a due amount of manual labor,

while the others were assigned to various and lighter tasks of hospital housekeeping. In his first Retreat report Butler stated: "In all departments of our household I aim to mark idleness disreputable, and profitable employment honorable. The sewing circle for the ladies was made an important affair; musical and reading parties met two afternoons each week. Walking out into the country or about the grounds was enforced with regularity." The doctor often accompanied such parties, when he generally directed the line of conversation and added very much to the pleasure of the occasion by practical discussion, or fanciful suggestions, as the mood inclined. At one time it was his practice to go into the grounds daily with patients. He writes: "The hour previous to evening prayers, on every pleasant afternoon in the summer and autumn, our female patients, with scarcely an exception, have joined me in a ramble about our garden and grounds, for the tasteful planting and ornamentation of which we are so much indebted to the benevolent foresight of some of the founders of the institution." As the beautiful in nature and art strongly appealed to the doctor, we can imagine the interest he aroused, the pleasure he conferred by descanting upon the trees, their foliage, fruits, natural history and special characteristics, or discussing the flowers, the buds, insects, landscapes, cloud effects, etc. His skill in adapting his suggestions to the case in hand, or the emergency, was remarkable. With flowers and the uses he could make of them his resources were almost unlimited. In one of his reports he made this statement: "Flowers—these are the best of medicine, the most blessed of remedial means. If any one doubts this, let him bring me a bouquet of flowers and I will find him scores of witnesses that this is not word-painting, and that I have not in the slightest degree exaggerated the truth. I have not for the year had such grateful thanks for any one act of professional service or personal kindness as for the gift, the other day, to a poor nervous invalid of a few early violets."

In another place he has recorded his experience with a violent female patient who was about to attack him with tooth, nail and fists, when he arrested her attention and movements by thrusting before her face a dandelion, or some other early spring flower, which he had plucked immediately before he entered the hall where this hitherto vicious woman was confined. Following up

the first success of his ruse by an interesting talk, first about the flower, then changing the topic to dress, her personal appearance, and concluding with promises and compliments, he withdrew without a demonstration on her part. From that time the doctor's arts succeeded in managing this patient without the restraint and seclusion previously considered absolutely necessary.

That he often made use of flowers to engage the attention of his patients, to substitute agreeable for disquieting trains of thought, we have abundant evidence. Another instance may be cited, as it illustrates his resources and methods. A lady of refinement, moving in the higher social circles, having become insane, was taken to the Retreat by a party, including her husband. They entered the institution with an overwhelming sense of affliction and distress. They dreaded meeting the doctor and revealing certain unpleasant features of their family history, which they presumed the doctor would worm out of them, and they anticipated greater distress at the prospective parting, the patient to be immured in a public asylum, the others to return to what was their home before the devoted wife and mother was hidden away in a mad-house. The husband first met the doctor, but his few words conveyed little information concerning the mental disorder of his wife, while they clearly disclosed the highly wrought emotional sensibility of the patient and her friends. Butler immediately proceeded to the reception room and was introduced to the lady. Under such trying circumstances the doctor's consummate art seldom failed him, and this occasion was not an exception. He addressed himself to the patient in that manner, speech and tone which Charles Dickens observed at South Boston and characterized by the term "Chesterfield."

A rare flower, in a fitting holder, was standing upon the table in the room, and presently the doctor had the attention of the whole party (the to-be-patient included) fixed upon that flower. In glowing terms he noted its delicate features, exquisite coloring and fragrance, the special circumstances attending its discovery or development, the literature concerning it, etc. With such a beginning he gradually drifted around to the importance and utility of flowers in the hospital, and related striking instances in his experience when the presence of flowers had been singu-

larly fortunate. Then followed a description of what ornamentation was desirable in the wards of a hospital, and the agreeable side of hospital life was depicted, until he had aroused in the minds of all his auditors a curiosity to visit the wards. Taking on his arm the afflicted lady, he escorted the whole party through his parlor wards and came to a stand in a room charmingly arranged which was then and there assigned to the new patient. Calling a nurse to assist and entertain his "new friend," he shortly conducted her family back to the office and excused them with the most abridged formalities as regarded the reception of the patient, but with reiterated assurances that the patient would be tenderly cared for, and that his 25, 30 or 35 (as it may have been) "years of experience in treating the insane" would "go for nothing" if that patient did not ultimately recover. In this, as in so many other instances, the doctor's management was merciful and comforting. The clouds of sorrow which had so circumscribed their mental vision when they approached the Retreat, if not wholly dissipated, had become far less dense and had taken on a silver lining as they turned away. Their faith in the doctor's assurance thus established, and renewed by visits from time to time, sustained their spirits until his predictions of a recovery were in time happily realized.

It must not be concluded from this account that Butler long remained ignorant concerning the previous history of the case. He waited only for a more fitting occasion. It was his common practice to dig deep into the family and personal history of his patients; to establish, if possible, a connection between their mental disorder and some previous accident or error in their lives. And this he did, not only that he might the more intelligently treat the patient, but that he might be able to give the patient and friends, in case of recovery, such advice and warnings that subsequent attacks might be prevented, or at least be guarded against.

A short but pathetic story entitled, "Belle's Trouble," "an ower true tale" of Butler and one of his patients, written by Rose Terry Cook, happily illustrates several of his characteristic methods. This patient, Belle, was about 22 years old. As an orphan girl she was a forlorn being "endowed with a delicate and sensitive organization," had a heart full of love and capable

of sacrifice, but cruelly tender. Her husband, Charley, to whom she had been married about two years, lived with his mother and sister on a hill farm in the western part of the State, the management of which he had assumed several years before, on the death of his father. The mother and sister were unsympathetic in nature, frigid in manner and more than frugal in their ways of living. They were generally dissatisfied and almost constantly complaining. Charley's father during his lifetime had the sympathy of the neighbors. It was said that he "always spent rainy days in his barn with his boy rather than encounter the northeast atmosphere of his family circle in the house." The sensitive, unassuming, uncomplaining Belle was brought into this family, where she was immediately assigned the most laborious tasks in the household. She toiled on, a very drudge, but received no thanks, no commendations, only incessant criticisms and nagging from his mother and sister. Their treatment was so tormenting her spirits drooped, her strength failed and life became a burden. Morbid religious scruples preyed upon her mind—going to church offered no rest, no consolation. A long ride to church after the morning work was done, sitting in hard seats through two long sermons by "old Dr. Redfield," who quavered out unmitigated Calvinism and cast-iron doctrines, accelerated her physical exhaustion and her mental instability. Charley, meantime absorbed in his own duties, absent in Maine lumbering a part of the time, had failed to note just the treatment his wife was receiving and the effect it was producing upon her health. He was "a typical New England farmer of former days, his strength of tenderness closed in a burr of rough manner, requiring the blow of adversity or the frost of grief to open the shell and disclose its treasures." His heart was full of tenderness toward his wife, but he had too little command of words to describe such sentiments, and it never occurred to him that a married woman craved encouragement or reassurances of affection.

The collapse came at the end of two years. One morning she was found to be in a stupor; she was pallid, silent. Her eyes were open, but seemed to see nothing. She would not speak, she would not swallow food. The mother and sister thought it an attack of hysterics and that starvation would soon cure her, but

the village doctor, who was called in, told them Belle was crazy and must go to a hospital.

In due time Charley and Belle reached the Retreat. "They were shown into a small parlor, and presently there came in a kindly, shrewd-faced gentleman, behind whose gold spectacles shone a pair of penetrating eyes, and whose soothing voice and considerate speech did not seem to alarm Belle." As soon as the nurse had removed Belle to her room, "Charley asked, with a thrill in his voice that told its own story, 'Will she ever get well, doctor?'" " 'I hope so, I confidently hope so, my dear sir,' " answered the doctor. " 'But it will be some time first.'" " 'You will let me come and see her?'" " 'Why, yes; but I wouldn't, I wouldn't. She wants to be kept free from old associations and be quiet for awhile. I'll write about her, and just as soon as she asks for you I'll send word.'" In these answers to the anxious husband we note the clear phrasing of non-committal sentences, which, when spoken with the right emphasis, usually gave entire satisfaction. A repetition of phrases, with perhaps slight variations, was his common practice, such as, "I hope so; I confidently hope so."

While he aimed to give all possible assurance and comfort to friends of patients, he never encouraged them to expect a speedy recovery. Again and again in his reports he deprecated the usual desire of friends to remove convalescent patients from the protecting care of the hospital at a dangerously early stage, and so in this case he early sounded the warning—"But it will be some time first."

When the young husband asked about visits to his wife he touched the doctor's positive conviction that in the greatest majority of cases it was mistaken kindness to allow patients to receive visits from friends, although he seldom asserted his prerogative in a tyrannical spirit, refusing such requests point blank. The doctor's answer in this case, while diplomatic, had all the force of prohibition. His "Why, yes; but I wouldn't, I wouldn't," sufficed in this case, and Charley did not see Belle until she had recovered and was ready to return home.

"It was a little over a year when Charley came back from town with a new light in his eye and a rare smile on his lips. The doctor had written to him that he could see Belle. For indeed,

though the doctor did not tell him so, Belle was her sweet self again." Meantime, "when the doctor was sure she was quite strong enough, he called her into the parlor and said: 'Now, my dear, I want you to tell me how you fell into the condition that brought you here.'" And he persisted until he had the whole case with its environments in view. Overworked, under-nourished, toiling housewives always received his sympathy and his best services. And so Charley was not allowed to remove his wife from the Retreat until he was made to realize his own share of responsibility for her breakdown. The vicious results that could but follow the treatment his wife had received from his sister and mother were vividly portrayed, thus evoking expressions of resentment from the husband, and a resolution that he would no longer tolerate their unintentional, but no less cruel, conduct towards Belle. And when he protested he "loved Belle like his life, and would have been willing to have been shot through the head if it would have done her any good," the doctor made reply: "My good fellow, it wasn't all the fault of the women. Did you ever think to tell Belle that you loved her, or praise her neat house or pretty looks? Women are quite different from men; they can't believe in deeds without words; they want to be encouraged and helped. If you knew how many women had been brought to me with their minds astray and despairing because their strength had been overtaxed, and their hearts starved and disappointed, you would see why I say this to you." As the result of his fatherly interest in this case, Belle was sent to stay with a good aunt until Charley had built a new home on the farm, in which Belle was in due time installed as mistress.

Knowing the doctor's keen sympathy for those in distress, the firm though kind manner with which he denied constant petitions from patients and their friends for the privilege of visits was a surprise even to his assistants. I recall the case of a Yale student, the son of a foreign missionary, who had improved little, if any, at the end of three months, when his mother and a gentleman—friend and adviser of the family—came to the Retreat one day and abruptly demanded custody of the patient whom they had decided to remove. I sought Dr. Butler and hastily acquainted him with their determination. He quietly entered the

reception room and closed the door, which was not opened for two hours. But in time they all appeared, the manner and expression of the visitors entirely changed, and going directly to their carriage they departed without a glimpse of the patient, whose ultimate recovery abundantly justified Dr. Butler's judgment and conduct in this case.

The doctor's offer to write Charley about Belle was no idle promise. He was skilful in reporting cases to their friends, and in special cases wrote extended and frequent letters. He often employed as an amanuensis some trusty patient, so he could increase the volume of his correspondence. How he would have utilized the services of a stenographer and typewriter only those who knew him intimately can conjecture. "Dr. Butler was the best letter-writer I ever knew," said a Michigan business man to me. The wife of this gentleman was under Butler's care at the Retreat about one year. He continued: "From the first Dr. Butler inspired me with the confidence that my wife would receive every consideration and ultimately recover, and every letter I received from him reinforced my faith. Meeting friends who would anxiously inquire for the latest news with regard to the progress of the case, I invariably gave favorable reports, generally adding that Dr. Butler's last letter was very encouraging. But when such friends became more particular in their queries, endeavoring to ascertain the basis of my hopes, I would commence to dissect the doctor's letters, but I seldom found a statement in those written during the first six months that could be effectively quoted to our anxious friends. At length I received a message from the doctor as follows: 'The clouds are breaking. Come to Hartford.' I responded without delay. When I met the doctor his face shone with pleasure as he gave me in detail the improved condition of my wife; and when he assured me there was no longer any doubt as to her speedy recovery, he had every appearance of being as much gratified at the results as though she were a member of his own family."

Butler not only worked faithfully to cure his patients, but he neglected no opportunity to apply himself to the task of preventing insanity.

After he became president of the State Board of Health he was

very much interested in a proposition to incorporate in some school physiology a chapter on the Prevention of Insanity.

In attempting to present a clear conception of Butler's methods, it has seemed necessary thus to go into details, since he scarcely treated two cases exactly alike, but varied his manner, his speech and his suggestions, to meet the varying temperament, mood or mental disorder of the patient in hand. While from such a statement the conclusion might be drawn that his management of cases lacked method, yet every manifestation of his plans and his acts harmonized when gauged by the broad basic principles of humanity and sympathy. He seemed able to read human nature with remarkable facility, shrewdly divining the motive which prompted action or speech. He possessed the happy faculty of making satisfactory replies to pointed questions without committing himself in definite language. As evidence of this capacity and a sample of his laconic speech, his answer to an old acquaintance when he left the Retreat may be quoted: "Dr. Butler," said this man, "I have been one of your helpers in the Retreat for years. I know how hard you have worked to build up the institution, with what keen personal interest you have pushed improvements, and now when you have accomplished what you have been working for for the last thirty years and can sit down and enjoy the fruit of your labors you are going to leave, will you tell me why you have resigned?" He simply replied: "My friend, did you not know it is always safest to go ashore at high tide?"

His visits to the wards were greatly enjoyed by the patients. His step and voice were sufficient signals to attract their attention. Frequently they would group themselves about him. Perhaps some one would demand a direct answer to a personal question. If he preferred to remain non-committal, he was ready with a story or parable which would be so apt that the answer would be obvious, though not definitely spoken. Addressing sometimes an individual, sometimes the whole company, he would relate some diverting story, quite often an original one, or quote some specially applicable extract. Perhaps he would touch off the characteristic of some one present by quotations from John Bunyan or Charles Dickens. While endeavoring to entertain and amuse his auditors in this manner, he never allowed his wit

to wound the sensibilities of those about him; sarcasm was seldom, if ever, employed. However facetious and playful his beginning, he would develop a practical point as he went on, and frequently would close such a ward visit by dropping his head and looking kindly out over his gold-framed spectacles, saying "now seriously," and then draw his intended moral or give in terse phrases a needed admonition, or a helpful suggestion to one or more of those present. It was indeed a treat to accompany him on such visits, to note the clear argument, the apt quotation from the Bible or general literature, the good-natured raillery or honest contradiction, the hopeful predictions and the cordial sympathy which he commanded and used so often most effectively. From grave to gay, from light to serious, from frivolous to wise, would his manner and words rapidly change in adapting himself to the various cases.

In such efforts his well-stored memory and fertile imagination seldom failed him. Direct questions, dismal forebodings, insane delusions and vain conceits had to be met, parried and corrected under circumstances which would have taxed the quick perceptions of the most artful strategist, and yet he never hesitated. If on the wrong tack, his keen perception would instantly recognize the fact and he would adroitly shift to a new line of action. While thus contending with the vagaries of his patients, he never sacrificed his principles, never resorted to falsehoods, but always acted in keeping with honor and sterling manhood.

Enthusiasm was one of his conspicuous traits of character. It brightened all his labors and so infected those about him that difficult tasks became less irksome, more and better work was done. He valued persistence. If determined to accomplish a given result, and his first attack failed, he could abruptly change his tactics and approach the problem from a new quarter. "Eternal vigilance, eternal vigilance, doctor," was his watchword. In giving encouragement to others, especially young physicians, he often described a ruined fortress he once visited in Europe. Meeting a prominent military officer, he asked how it became possible for the attacking force to batter down the formidable walls of masonry. Said the officer: "Nothing is more easily done when you get the range. Keep your gun in position and

continue throwing balls to hit the same spot. The wall must crumble in time." "Persistence wins the siege," was the lesson the doctor impressed upon young men.

An almost endless mass of such detail might be related concerning him, but enough has been given to emphasize the importance of moral measures in the treatment of the insane. His faith in such treatment was warranted by the results he achieved. In the fortieth report of the Retreat, statistics are given which show that of those previously admitted to the Retreat above 50 per cent had recovered. In the earlier reports the per cent of recoveries was very much higher, but the ratio gradually declined. It was 39 per cent the last year of his active service.

Assuming, as I think we properly can, that types of insanity have somewhat changed in recent years, and that public sentiment, combined with professional opinion as to which were cases suitable for hospital treatment, operated in former days to send what we would now call selected cases to the hospital—cases the nature of which rendered them especially amenable to treatment, still Butler had substantial grounds for confidence in his success with moral agencies.

There is ample evidence that he did not ignore the teaching of scientific medicine in his day. In the first report he published, we find this sentence: "Whoever has brought himself to consider a disease of the brain as differing only in degree from a disease of the lungs has robbed it of that mysterious horror," etc. Seventeen years later he wrote: "In many varieties of the disease the use of various articles of the *materia medica* are indispensable to cure; in many more they are useful, soothing, pleasant adjuvants. I cannot discard the use of these agents. The longer my experience, the stronger my confidence in the power of some articles of the *materia medica* over diseases of the mind. But these moral means are so pleasant in the using, they so soothe the heart, weary with long waiting for health and home, and for a time at least they banish from the mind those delusions which make the worse appear the better reason. Amid their weary hours and sad or fearful imagining, music, games, all social or intellectual gatherings and recreations, art, picture engravings, statuary, etc.—it is upon these and kindred influence

that we must place our main reliance in the treatment of insanity."

In support of these claims, we will quote from the report of Dr. Gallaudet, the worthy and deeply interested co-worker with him, for many years at the Retreat: "The delicate and mysterious union of soul and body, and the natural influence of each upon the other, both for good and for evil, have been fully recognized, not only in theory, but in practice. It has been found that the derangement of the intellectual and mental process is often to be traced solely to bodily injury or disease, and that these must be alleviated or removed before sanity can be restored. But it has also been ascertained that purely mental or moral causes are in many cases the first in the train to produce insanity, and that the mind and the heart may be so addressed, in connection with the required medical treatment, as to act with surprising energy and success upon the bodily functions in the removal of the disease, and thus to rank among the most efficient agents of relief and cure. He has the most skill and will accomplish the most good in the treatment of the insane, who thoroughly investigates, and who well understands the reciprocal influences of the mind and the body; who can give to each its due proportion of agency, and who causes them to harmonize in their action, and who, thus in the curative process, can best succeed in treating the whole man, physical, intellectual and moral." With such aims and such instrumentalities Butler worked diligently for the insane for nearly thirty years. Testimonials to his success at South Boston have been quoted. His success at Hartford was not less pronounced.

While the most important results of his long-continued personal efforts in behalf of a very multitude of patients must remain inaccessible to us—having been written only in "the fleshly tablets of the heart" of those who in sickness and affliction had the good fortune to fall under his judicious care—yet he left as a substantial memorial of his labors the reconstructed Retreat—the old lunatic hospital obliterated, and the home for the nervous and the insane developed—with such wide renown and fair fame that its capacity was the limit to its patronage, and with a *clientèle* representing the best classes in society from nearly every State in the Union.

It is now more than half a century since Butler formulated in his mind those tenets, or methods, the application, or execution, of which gave him a prominent position as a specialist in mental disease. This period has been marked not only by great changes in the social condition of our population, but most surprising advances have been made in science and the arts.

Medicine, in some branches at least, has been rewritten upon a basis of comparatively recent science. In keeping with the general trend of business affairs, lunatic hospitals have undergone changes. They have rapidly increased in numbers and vastly expanded in size. In their laudable desire for a scientific standing they vie with each other in providing laboratory facilities. Medical officers also are burdened with executive obligations, and ambitious ones must devote much time to pathological questions. With the pressure of these new, interesting and important considerations, painstaking personal efforts with individual patients are in danger of being neglected. And yet the power of the mind over the body, and the laws of sympathy which, unfortunately, cannot be stated in scientific terms, have undergone no changes, and will ever respond to the right application.

Is there not an obvious moral to be drawn from a review of Butler's life-work, namely, our duty to uphold and utilize as fully as possible in our practice these powerful moral agencies which the fathers of New England psychiatry, Todd, Woodward, Butler, and others found so efficacious in treating the insane?



ON THE IMPORTANCE OF PATHOLOGICAL AND BACTERIOLOGICAL LABORATORIES IN CONNECTION WITH HOSPITALS FOR THE INSANE.¹

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The subject to which I have been asked to direct your attention for the next half hour or more is "The Importance of Pathological and Bacteriological Laboratories in Connection with Hospitals for the Insane." I am desired, I take it, not to make a plea in favor of the establishment of such laboratories, for the need and importance of them, in all higher medical circles is, I think, generally recognized, and such a plea is unnecessary, but rather to review briefly the benefits which have been derived and are derivable from these and similar institutions of study, and to indicate some of the ideals which those in charge of them hold up before themselves as the desirable and the possibly attainable.

In a hospital for the insane we have to deal, as a rule, with a large aggregation of individuals, among whom are a relatively large number that suffer (as antecedent to, consequent upon, or simply as accidentally concomitant with, their mental or neural maladies) from diseases of various parts of the body. In so far, every hospital for the insane is also a general hospital. Leaving out of consideration the distinctly psychiatric side of the question for the moment, it is obvious, then, that we have in the hospital for the insane, as we have in any other hospital, cases which demand for their proper understanding special knowledge in the

¹An address given before the Marion County Medical Society and its invited guests, Tuesday evening, December 18th, in the Pathological Department of the Central Hospital for Insane, at Indianapolis, Indiana.

domain of internal medicine, of surgery, and sometimes of gynæcology. When the psychiatric or principal side of such institutions is also borne in mind, we have, in addition, to take account of the special advantages which pathological and bacteriological laboratories afford in the understanding of the special problems which confront the alienist.

Why is it, let us ask ourselves, first, that in the study of medicine, surgery and gynæcology the methods of the laboratory play so much larger a part than formerly, and that pathology and bacteriology are magic words in the medical vocabulary? Why is it that, in connection with the hospitals of the better sort in all the large cities of this country and of Europe, distinct rooms, or buildings, have been or are being set apart from the others, to be devoted entirely to the study of abnormal form and function?

When the records that have come down to us are consulted, it is found that up to the time of Morgagni physicians were engaged in studying diseases by observing sick individuals during their lifetime and in trying by almost purely empirical methods to cure them. Diseases were by many looked upon as concrete entities, separable from the body, which, on entering it, created a disturbance until they were expelled. Even those free from the common idea that diseases were identical with certain evil spirits were more or less imbued with the conception mentioned. It is to Morgagni that the world owes the banishment of this false view. In his book, *De sedibus et causis morborum*, are to be found the doctrines which he spent his life to promulgate, and upon which, as a foundation work, the great structure of modern pathology has been built. In the title, "Concerning the causes of disease and the localities of the body diseased," we recognize the themes which have animated hundreds and thousands of the best medical minds, from the time when Morgagni formulated it to the present day. "*Ubi est morbus?*"—where is the disease?—was the question which Morgagni and those who have followed him have always put to themselves for answer as the first step in the solution of the problems of the cause, of the nature, of the cure, and of the prevention of disease. This introduction of the "anatomical idea" into the study of disease-processes, as Virchow has pointed out in his admirable address upon

Morgagni,² was of the deepest influence in forwarding pathological investigation. Post-mortem examinations were made more frequently; keen minds set to work making acute observations on the deviations from the normal met with in the structures as examined at autopsy. John Hunter, the famous Englishman, in that uncanny menagerie of his at Earl's Court, is a notable example of an enthusiastic pathologist, who worked not only on morbid anatomy in human beings, but also on that to be met with in the animals which came under his notice. Johannes Mueller, in Germany, combined such pathological work with his studies in anatomy and physiology and made important discoveries. Louis, in Paris, in connection with his clinical work on fevers, made most interesting observations on the changes visible in the viscera in many of his fatal cases. Rokitansky, who numbered his autopsies by thousands, added enormously to our knowledge of the gross alterations in form which occur in disease. These studies, however, dealt chiefly with the grosser localization of pathological lesions, *i. e.*, with the relation of macroscopic changes in given diseases to certain particular organs.

It was left to a French psychiatrist, Pinel, and to his pupil, the brilliant but unfortunate young anatomist, Fr. Xavier Bichat, to push the analysis of localization a step farther. Bichat is known to us usually as the founder of the modern science of histology—as the investigator who led us to direct our attention beyond the organs to the elementary tissues of which the organs and the body generally are composed. Owing to destitute circumstances, poor food, and overwork in the dingy, overcrowded rooms in Paris, Bichat closed his eyes forever when only about thirty-one years of age. But before his death, following up the ideas of his master and friend, he had introduced into pathology, as well as into anatomy, the histological conception. By this I do not mean the use of the microscope, for, strange as it may seem, Bichat never took kindly to this instrument. What he stood for was the fact that certain of the elementary tissues, *e. g.*, that covering the mucous membranes, or that known as muscle, are

² Virchow, R. Morgagni und der anatomische Gedanke. Berl. klin. Wehnschr., 1894, xxxi, 345-350.

particularly changed in given diseases, and he maintained that in disease it is common to find that a given tissue, changed in one part of the body, is also changed in other parts of the body, that is to say, irrespective of the particular organs or parts in which it is situated.

As the next greatest step forward in pathological anatomy and physiology, I would place the application by Rudolph Virchow of the cell doctrine to the study of disease. Advanced by Schleiden and Schwann, and modified by Max Schultze, the cell doctrine cleared up an immense number of difficulties in normal anatomy and histology, permitting the evolution of embryology and the origin of the science of histogenesis. It was no small stride onward when we were taught that the phenomena of life are connected with a protoplasmic substance arranged in a complicated manner in the form of cells; when we learned that some animals consist of single cells and that other animals consist of several cells, or, in the highest groups, of an enormous number of cells; when we were informed that every animal, even man, begins as a single cell—the fertilized ovum—which, dividing into two, then into four, eight, sixteen cells, and so on, ultimately gives rise to the total mass which we recognize as the body of an adult; when it was proved to us that, corresponding to the physiological division of labor met with among the cells of the body, there has been a peculiar differentiation of structure; when the fact was impressed upon us that the total functions of which an animal or a man is capable are nothing more than the combined total capacities of the cells of which he is composed; and when we were assured that pathological processes represent disordered cellular activities, and that the gross alterations visible in organs and tissues are found, by means of the microscope, to be due to alteration in, diminution of, increase of, or disappearance of the normal cells of the part, to the advent of new cells, or intercellular substances derived from cells not normally belonging to the part, or to the arrival in the part of dead or living substances from the external world.

The changes in inflammation found, if not complete explanation, at any rate, marked illumination, in the studies of Cohnheim; the cellular alterations in atrophy, hypertrophy, and the various degenerations began to be carefully studied. Tumors

were subjected to thorough scrutiny; a more rational classification of these pathological new growths became possible; the benign can often be distinguished from the malign by removal of a small piece for microscopic examination during the life of the patient and specific instructions given to the surgeon as regards the breadth and depth to which his knife shall extend.

As the study of cytology is pushed farther, the cell, supposed to be a very simple elementary unit, turns out to be in reality a most complex and intricate organism itself. The delicate mechanisms met with in the nucleus and protoplasm of the cell, the structure and distribution of the centrosomes and archiplasm, the modifications which all these undergo when subjected to environmental influences, show us how far from the truth the earlier conception of the cell must be. Advantage has been taken of the difference in minute appearance and staining reactions, in order to classify cells, especially certain groups of them. A notable practical outcome is the differentiation which has thus been rendered possible among the various kinds of white blood corpuscles. The so-called "differential count of the leucocytes" is now one of the most important items in the diagnosis of a whole series of diseases. By means of such studies the anæmias have been classified, and clues of inestimable value for diagnosis and treatment have been obtained.

Du Bois Reymond, I think it was, who ventured the statement that a cell is as complicated in internal structure as is an ocean steamship. I fear that the steamship is infinitely simpler. When we recall what some cells can do, when we remember the curious microscopic pictures obtainable within cells under varying circumstances by means of the application of reagents which precipitate substances previously in solution within the cells, and especially when we remind ourselves that a single cell is capable of transferring from the life of one generation the characteristics of the species to the life of a second generation, we begin to gain some conception of the enormous complexity of organization which a cell represents, we marvel at the concentration of potential mechanism in the limited space, and we look wistfully, and as hopefully as we dare, toward the explanations of the difficult problems connected with cells which the future will reveal to us.

Not to be underestimated, as influencing the advance in our

knowledge of pathology, was the impetus given to experiment and study by the work of men like Claude Bernard and Carl Ludwig. In vital processes the factors concerned are nearly always multiple. This is no less true of the phenomena of disease than of those manifested by the healthy body. The influence of one or more of the factors dissociated from the others can, it is true, occasionally be met with as a natural phenomenon. More often we must contrive to produce the condition artificially by resorting to an experiment. We are in these latter days becoming too impatient to wait for nature to tell us her secrets of her own free will, but we interrogate her and wrest from her forcibly the knowledge we would have. It is in the laboratories, above all other places, in which the scientist struggles with this taciturn mistress until he compels her to yield to him the object of his desire.

Less far-reaching than the evolution of the cell doctrine, though temporarily probably of equal practical importance, has been the development of the doctrine of the micro-organismal origin of one group of ills to which human flesh is heir, viz., that of the infectious diseases. As of the greatest significance in the inauguration of the studies which have led to our present-day conception of infectious processes, the work of the illustrious Pasteur is universally admitted. A trained chemist, interested in sugars, tartaric acid and other compounds, he turned his attention to the processes of fermentation, with the wonderful results which will always be associated with his name. Extending his methods to the study of infectious diseases, he demonstrated the bacterial origin of anthrax and of a number of other diseases, pointed out modes of infection and prevention, and, applying principles similar to those of the immortal Jenner for small-pox, prepared vaccines against a large number of the diseases to which man and animals are subject.

Of the greatest practical importance in this connection are the researches of Robert Koch, begun in the spare time and quarters of a general practitioner in an obscure country town in Germany, but transferred subsequently to a larger and better equipped laboratory in Berlin. The introduction of solid nutrient media and of the plate method of culture made it possible to isolate the individual varieties of bacteria with comparative ease. The dis-

covery by Koch of the tubercle bacillus, and his studies and those of others upon its relation to various morbid processes, to pulmonary tuberculosis, to hip-joint disease, to white swelling of the knee, to caries of the spine, to solitary tubercle of the brain, to some forms of inflammation of the serous membranes, to lupus, etc., show us how enormously clinical and even pathological-anatomical ideas can be transformed, when it becomes possible to classify diseases according to their etiology rather than according to the symptoms patients present during life, or the lesions demonstrable in the cells, tissues and organs after death. Koch's researches upon the infections due to pyogenic bacteria may also be recalled, since they, with other investigations in the field of bacteriology, permit a scientific explanation of the good results obtainable from the antiseptic and aseptic treatment of wounds.

Further, as a direct outgrowth of the studies in bacteriology and of the extended application of the experimental method, the means of diagnosis in the infectious diseases have been wonderfully perfected; certain of the diseases, as diphtheria, have been placed strictly within the scope of satisfactory therapeutic control, and preventive measures, most wide-reaching in their beneficence, have been devised and manifoldly applied. The discovery of the malarial parasite, the establishment of different varieties of the same, the working out of the life-history of each, and the discovery of the rôle played by mosquitoes have revolutionized our ideas of the intermittent fevers of paludal origin.

In the study of pathology, too, the results of physics, chemistry and experimental physiology have been drawn upon with the happiest effect. Though insufficiently appreciated at first as a help in the scientific study of disease, these subjects have won their way in the field of pathology, until now they are regarded by many as the branches from which, in the immediate future, we have most to hope. The study of bacterial poisons, the investigations concerning the so-called internal secretions, the researches made upon absorption and excretion, and the application to biological problems of physical chemistry with the doctrines of Van't Hoff regarding osmotic pressure, and of Arrhenius concerning electrolytic dissociation, all have contributed, and are contributing, in an important way toward the better understanding of the nature of abnormal processes in the human

and animal body, and hold out to us the most alluring prospects for the future in the fields of pathogenesis and therapeutics. The progress being made in physics and chemistry is little less than astounding. A distinguished chemist gave expression in my hearing the other day to the view that it would not surprise him if within thirty years 90 per cent of the chemicals of ordinary commerce should be prepared with the aid of electro-chemistry. Even to-day in chemical industries the processes of manufacture are notably cheapened, for example, in the case of potassium chloride, by means of the application of electrical methods. The students of the present time, preparing for the medicine of the next two decades, will do well if they forearm themselves in adequate degree with a knowledge of physics and chemistry, not only because the methods used in these subjects are already so widely applied, but also on account of the fact that those who think that they see things as they are coming to be are almost blinded by the visions of forces and substances which rise up before them, for the interpretation of which only those will be sufficiently clairvoyant who approach the problems fitted with the special training of which I speak. The scoffer may ask in derision: "Of what possible practical value can it be for a student preparing to enter medicine to know about J. J. Thomson's doctrine of electrons, Van der Waal's equation, the échelon spectroscope, or the Zeemann effect in an electro-magnetic field?" They may, it is true, prove to be of no practical value, but such scoffers might have by this time learned modesty, for who could have foreseen the practical medical value of the study of obscure radiations? Yet how quickly the X-rays of Roentgen have been applied to the solution of medical problems. Who could have guessed a practical advantage derivable from the study of photochemistry? And yet we have recently been startled by the studies of Loeb upon heliotropism, and by the application of photochemical methods to the treatment of certain skin lesions, apparently with pronounced success, by Finsen.

I have said enough, I am sure, to remind you of some of the main steps of progress in pathology, and to make clear to you that most of these steps have been the result of laboratory work. It is but little wonder, then, that great clinical institutions desire to have intimately associated with them these special work-rooms,

in which the study of disease can be undertaken by laboratory methods.

Turning now to the more special side of the question, and asking ourselves what the particular benefits of pathological laboratories in connection with psychiatric work proper are, we find, I believe, just as forcible reasons in this narrower field as are potent in the domain of disease in general. Of late more and more attention has been paid to the relation of disturbances of general somatic nature to alterations in the mental characteristics of individuals; in many instances the special pathology of parts of the body other than the nervous system has been found to possess a distinct bearing upon morbid mental phenomena. But if clinical psychiatry is ever to have a rational basis, such as is being rapidly gained for other departments of internal medicine, it would seem that the path toward the goal striven after must run parallel, or more or less parallel, to the paths which have been followed and are being followed in the other clinical branches. The way-stations include normal anatomy and physiology, pathological anatomy and histology, pathological physiology, physiological and pathological chemistry and physics. That psychiatry is further behind than the other clinical branches in its progress toward rational explanation is deplorable, but can be readily appreciated, for in the nervous system we undoubtedly have to deal with the latest acquisition of the animal series, and in the human nervous system with structures incomparably more complex than those found in any other part of the organic world. Whereas the cell doctrine of structure was applied to the body as a whole early in the century just coming to an end, and whereas Virchow in the middle of this century developed his doctrine of cellular pathology for the body as a whole, the cellular conception of the structure of the nervous system was not fully applied until very recently. Retarded by the double conception of ganglion cell and nerve fiber, the relations between the two being imperfectly understood, it was not until extensive pathological studies had been made by von Gudden, Weigert, Monakow, Forel, and others, not until the embryological and histogenetic investigations of von Kupffer and His had been made and valued, not until the epoch-making studies of Golgi and Ramón y Cajal had been undertaken, that the cell doctrine

in its fulness could be utilized in explaining the nature and organization of the tissues of which the nervous system is made up. So confused did the ideas regarding the relations of nerve cell to nerve fiber remain, even after the studies mentioned had been made, that it became necessary for Waldeyer, in his much-quoted paper of 1891, to introduce a new term by which he designated the whole nerve cell in the nervous tissues as a *neurone*, indicating by this term not only the ganglion cell of the books, but also all processes connected with that ganglion cell, including the axis-cylinder of a nerve fiber with its terminal ramifications, no matter how far these are removed in space from the cell body, which gives the process origin. This recognition of the fact that every axis-cylinder process of a nerve fiber is, somewhere or another, connected with and forms an integral part of a nerve cell body, I regard as one of the greatest advances in neurology made during this century. Since the introduction of the neurone conception, the nervous system of man and animals appears to us in an entirely new light, and the task of relating the unit-mechanisms or neurones to one another in the various parts of the brain and spinal cord has been undertaken with ardor by investigators all over the world. The groups of neurones concerned in ordinary reflexes, in instinctive reactions, and in the more complex neural processes which we designate ordinarily as "voluntary acts," are gradually being worked out. Through the combination of work done in many laboratories and by multiple methods, we are slowly becoming informed with regard to the main features concerning the conduction paths which lead from the peripheral sense organs to the central system, those which lead from the central system to the muscles and secreting glands, and those which associate the activities of various groups of neurones inside the central system.

The experimental physiologists in turn are exerting strenuous efforts toward the attaining of knowledge concerning these various conduction paths and the neurone-systems of which they are composed. By removing great groups of neurone-systems in higher animals, they study the possibilities of neural function of those that remain. By stimulating certain groups of neurones artificially, ideas regarding their especial function, and often, too, ideas with regard to the functions of other groups most inti-

mately associated with them, can be gained. Others study the neural capacities of various animals as the series is ascended, compare these functional possibilities with the neural structure underlying them, and furnish us with invaluable data regarding the maximum capacities of nervous systems in different stages of the evolutionary process. Some of these studies are proving to be extremely suggestive. The main results from the anatomical side have been epitomized by Edinger in his excellent book on the structure of the nervous system, while the more striking results from the physiological side have been embodied, recently, in a most stimulating volume by my colleague, Professor Loeb, of the University of Chicago.³

For a long time both scientists and philosophers have been deeply interested in the relations between the neural structure and consciousness—between anatomy and psychology. The views have varied all the way from the optimistic height, of those who maintained that the mysteries of consciousness will be solved entirely by anatomical studies, to the pessimistic abyss, in which those reside who denied any possible relation between anatomical structure and psychic function, or who, admitting the possibility of a relation, were sure that it lies beyond the limits of recognition by the human intelligence. A great many have found, if not satisfaction, at least crumbs of comfort, in the doctrine of psychophysiological parallelism of Wundt; others, with Mach, avoid the question altogether by denying that any contrast exists between bodily and psychic processes. The monists, following the suggestion of Haeckel, assume that consciousness in greater or less degree pertains to all living matter. They base their assumption upon what they consider evidence of a "scale of consciousness" in the whole animal series. It may be pointed out, however, that great advances are being made along the lines followed by those comparative physiologists who insist that the whole conduct of life of the animals, which do not possess a cerebral cortex, is explicable upon a purely anatomical and mechanico-chemical basis without the help of hypotheses which assume in them the existence of a psyche. In other words, the

³ Loeb, J. *Physiology of the Brain*. New York: MacMillan & Co. 1900.

animal is studied as a machine, with the object of finding out what capacities it is capable of by virtue of the simple anatomical substructure which it possesses. It is a matter of great surprise to find how much of the behavior of lower animals, which at first sight appears to be the result of free-will action, can be satisfactorily accounted for as the direct resultant of chemical and physical forces upon an anatomical mechanism. A given stimulus applied under given circumstances produces a definite result with the certainty of a chemical reaction. The phenomena of chemotaxis, as studied by Pfeffer, and of the various tropisms investigated by Loeb, Engelmann and others, have opened our eyes wide to the effect of light, heat, electricity, gravity, etc., upon protoplasm! Through Loeb's researches we have been taught how animals, through the application of certain stimuli, and by virtue of these tropismic reactions, can be induced to behave in a manner distinctly non-purposeful, or even be led to do things utterly incompatible with the continuance of their existence. If food be brought into contact with an animal the mouth is set into motion and an attempt made to swallow the food. If a bee's head be cut off it will still suck up honey, though this cannot reach the body from which the head has been separated. Certain stimuli applied to the head of a planarian cause the animal to creep forward; but in an animal with two heads (artificially produced), Loeb found that the tendency to the forward movement of each was so great that the trunk was often torn in two. Many a boy has found out to his sorrow that a wasp can sting if the hind end of the body be stimulated, even after the wasp has been decapitated. The sting, as Edinger emphasizes, is the result of a known stimulus, and cannot be regarded as the result of anger, revenge or any other psychic cause. The experiments of Bethe on the crab, of Loeb upon worms, and of von Uexkull upon various forms, are interesting in this connection. It seems very probable, further, that many processes which involve what we call memory, a capacity for education, and complex associations, may go on in animals in which the existence of consciousness has not been proven, and in which many biologists believe it does not exist. Many of the so-called instincts would fall in this group. Even in man, where consciousness does play a most important part, there are pro-

cesses of a high degree of complexity which are carried on below the threshold of consciousness. I need mention only the circulatory and respiratory activities, and the movements of the walls of the alimentary canal. Childbirth has occurred in a natural manner in a woman with transverse lesion of the spinal cord. Indeed, it seems likely that all, or nearly all, of the functions mediated by the spinal cord, medulla and pons of human beings, are subconscious in nature. Especially illuminating is the explanation of the behavior of frogs in spring-time, which the physiologists have afforded us. It is a matter of common knowledge that in the spring the male frog grasps the female in a tenacious sexual embrace. "No power can separate these lovers; a beautiful example to human beings—they prefer to permit themselves to be cut in pieces rather than let go the loved one." Goltz sometime ago proved that at this period the skin of the female (alive or dead), or even that of the dead male when stuffed with the ovaries of females, sets free this "embrace-reflex" as soon as it is brought into contact with the inner side of the frog's foot. The frog can be cut into any number of pieces, but as long as the cervical cord, the fore legs and the connection of the latter with the former, remain uninjured, the embrace remains firm and there is no relaxation. He who believes that the consciousness for this act is localized in the cervical cord must, as Edinger⁴ says, bring some sort of proof for it. Until then many of us prefer a simpler view.

Unexpected light, too, has been thrown upon the functions of every part of the human brain by the study of its development just before and during the few months after the birth of the child. The researches of Paul Flechsig,⁵ of Leipzig, are by far the most important on the subject. He has certainly proven the existence of primary sense centers in the cerebral cortex, and that these centers are connected with other centers, situated lower down in the nervous system; he has brought adequate evidence in favor of the view that the fibers going to the single cortical areas become medullated successively, and in many instances he has given

⁴ Edinger, L. *Hirnanatomie und Psychologie*. Berl. klin. Wchnschr., 1900.

⁵ Flechsig, P. *Gehirn und Seele*, II Aufl., Leipzig, 1897.

us information as to the exact period of such medullation. The conception of association centers, intercalated in the cortex between the primary sense centers referred to, undoubtedly represents a great advance in our knowledge of that part of the nervous system with which we have good reason to believe the processes involved in consciousness are more particularly connected. Flechsig has carried his theories and speculations, however, far in advance of the position which his new discoveries in anatomy justify. We must, therefore, accept his actual findings with gratitude, but at the same time be careful to sift out his theories from the facts.

It is certainly fair to state that in Europe the greatest advances in the anatomy and pathology of the nervous system have been made in laboratories which are connected more or less intimately with institutions in which psychiatric and neurological cases are studied clinically. In many instances the clinician has also been the laboratory worker, but there has been an ever-increasing tendency toward differentiation, and the best results would appear to be obtainable where well-trained clinicians, with some pathological experience, work in cooperation with skilled pathologists, especially when the pathologists, before giving their time exclusively to the laboratory, have had a good clinical training. In Germany, psychiatric institutes entirely devoted to psychiatric teaching and investigation have been established in connection with many of the universities, it being believed that in most asylums the atmosphere and spirit prevailing are paralyzing to scientific workers.* I emphasize the desirability of the clinician being trained in pathology and of the pathologist being trained in clinical work, before the limitation of studies on the one side or the other side is begun, for I believe that more intimate relations between the clinical students in the wards and the investigations in the laboratories will exist, if the sympathies of the men in each department are wide, so that there may be multiple points of contact between them. Nothing is truer than that the clinicians, who verify their bedside knowledge by extensive laboratory

* The reader is referred to the admirable paper by Kraepelin on "The Duty of the State in the Care of the Insane," translated into English by Dr. Stewart Paton, and published in the *AMERICAN JOURNAL OF INSANITY*, 1900, vol. lvii, pp. 235-280.

study, do the most thorough, the most conscientious and the most fruitful clinical work. The association of a laboratory manned by investigators skilled in particular methods, in connection with hospitals in which clinical work is done, especially if the fatal cases come to autopsy and are thoroughly worked up in the laboratory, has been found to react most favorably upon the character of the work in the wards. If our mistakes in diagnosis are not buried with the patient, but are vividly brought before us with the aid of the knife and the microscope of the conscientious pathologist, we soon learn to make fewer mistakes, and we are constantly stimulated to leave no power neglected and no means untried, which can throw light upon the nature of the process with which we are dealing during the life of the patient.

The pathology of nervous diseases, with the exception of the mental forms, has made rapid and encouraging progress. We have as yet, it must be admitted, no pathology of mental diseases worthy of the name, nor can we expect any very satisfactory psychiatric pathology until our knowledge of cerebral anatomy and physiology has been much extended. Yet a beginning has been made, and we have every reason to believe that continued conscientious work will lead to important results. The investigations which have been carried on in Vienna, in Breslau, in Leipzig and Heidelberg, in Paris, in Stockholm, in Naples and in London, show us that rich rewards await the diligent and intelligent laborer in this domain. The facilities offered at the new Psychiatric Institute at Giessen give us an inkling as to the importance the Germans attribute to psychiatric pathology. A noble effort is being made in this country to combine laboratory work with clinical psychiatry. The laboratories at Worcester, at Waverley, at Danvers, at New York, at Baltimore, and at Gallipolis will be at once called to mind. It is a pity, however, that the encouragement to such work in America is as yet not great. Our insane asylums are in many ways admirably organized, but that organization is strongest on the economic and social side; it is weakest on the scientific side. I believe that much could be done if, at a few of the stronger universities, psychiatric clinics, like those of Breslau and Giessen, could be established, with professors who give all their time to teaching and investigation; such institutions would have a beneficent effect, in that they would

offer opportunity for special training in psychiatry; from them the State hospitals could draw men who are strongly interested in the subject and who had obtained practical skill, rather than be content with assistants, as is too often the case now, who go into psychiatry as a mere side issue, something any medical man can easily "take up."

There are in America relatively few skilled clinical psychiatrists, in the higher sense of the word; there are fewer men who have prepared themselves adequately for laboratory investigations in connection with skilled clinical psychiatric work. The pathologist can do but little, if his cadavers come to him without an adequate clinical history, and without a special record of abnormal psychic phenomena. Again, the clinician, who works out with great care and detail exact deviations from the normal of his patient at different stages of the progress of a mental malady, has too often, if the disease terminates fatally, to put up either with no opportunity to make a post-mortem examination at all, or, if one is made, with a superficial and totally inadequate pathological report. One of the first necessities in the psychiatric institutions of America is to improve the clinical methods in vogue. It is the duty of the State to provide not only sufficient assistants to make daily visits to patients, and to plan amusements for those capable of taking part in them, but also to appoint at least a certain number of trained clinical investigators, who are capable not only of applying the most recent clinical knowledge available to the study of the cases before them, but also to devise new methods and to make actual contributions to the advance of clinical psychiatric knowledge. These scientific investigators, in order that their work may be effective, must be associated with skilled laboratory research workers, who will do for the pathological side what the man of special skill contributes toward the clinical side. In this country, and especially west of the Alleghanies, a spirit dominates, and we all recognize it with gladness, which makes rapidly for progress. Ideas, which are true, quickly win their way, for our people are determined to be satisfied with nothing short of the best. It is an encouraging sign to find here in Indianapolis so well equipped a laboratory in connection with a hospital for the insane—a laboratory in which a pathologist, Dr. White, is to give his whole time to teach-

ing and investigation. I have gone over this laboratory to-day, and through the kindness of Dr. Edenharter have been permitted to examine it in detail. It is admirably constructed, and presents many features that are novel. This institution and this community are to be congratulated on the possession of it, and on the fact that it is determined to facilitate every effort in this place toward a more thorough study of psychiatric problems. That this laboratory may be a center to which earnest workers may gravitate, and one whence reports of important research may emanate, is a wish in which everyone here present will, I feel sure, heartily join with me.



A CONTRIBUTION TO THE PATHOLOGY OF THE SO-CALLED FUNCTIONAL NEUROSES.

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Granting that the brain is the organ of the mind and that insanity is a symptom, the result of defective function of this organ, many cases of incipient insanity may be properly classed under this head.

Hysteria, a derangement primarily of the higher cerebral centers and secondarily of the lower centers of the brain and cord, neurasthenia with its endless variety of manifestations, and hypochondriasis—all morbid states of the nervous system, in which there is mental depression, and which are frequently premonitory signs of more profound morbid mental conditions—are symptoms rather than distinct diseases, mere morbid manifestations of a definite pathological process. We must agree that these conditions cannot exist without a change in the material structure of the organs involved.

If we limit pathological research to pathological anatomy, to the post-mortem room and laboratory, we invariably come to the conclusion that certain conditions of the body, in consequence of which some special form of disturbance of the nervous functions may be exhibited, are purely functional. On the other hand, the pathologist who makes his investigations on a broad comprehensive basis, and studies mental and nervous disorders in the broad light of general pathology, making diligent search in every branch of science allied to general medicine, will attain intelligent views as to the real meaning of disturbed nervous functions, and will fully agree that there can be no morbid manifestations with-

out structural changes of the tissues involved. He will accept the theory that all mental activity has its physiological and anatomical nervous mechanism, and that destruction of this mechanism means destruction of psychological and physiological function.

While we admit that in many instances no gross pathological changes are found in the cerebral cortical tissue, it less frequently happens that the microscope fails to demonstrate intracellular changes. It is true that this is not the primary lesion, but the result, depending on alterations in the nutrition of the nerve elements.

Recent study of a great variety of cases of this class bears out the assumption that disturbances of the gastro-intestinal tract are attended by bacterial necrosis, and the introduction into the general circulation of certain very virulent toxic agents, whose effects are expended largely on the nervous system.

It has been clearly demonstrated that the study of morbid anatomy alone cannot give us all the information that is desired, when the initial cause of the so-called functional disorders is not known. At the most it can only reveal to us the effects of pre-existing factors, and leaves us in the dark as regards the primary cause. This fact led the author to consider the subject from another aspect. The conviction is steadily growing in the minds of neurologists that the actual agents which produce tissue changes are toxic substances of one form or another.

Experimental biology has given much aid in studying the action of chemic-toxic substances on cell-protoplasm. That modern biology and general pathology are inseparately associated, has long been recognized, and becomes more and more evident since research with modern comparative experimental methods has been a competent guide for us in the study of special pathology; whence it results that much of the recent advance in the study of cellular pathology must be accredited to experimental biology.

Personal observations made some years ago have led the author to believe that experimental biology is a most valuable adjunct to the study of modern cytology, especially in psychopathology. The results of these studies give us fairly good reason for believing that the earliest changes occurring in the plant

cell, when treated with various toxins, represent the beginning of death, while they much resemble those found in higher animal life.

For the study of the finer intracellular physiological and pathological changes, especially those artificially produced, we must select cells presenting those conditions which are favorable to, and permit of, observations under a high magnifying power during life. We must first become thoroughly familiar with the morphology and physiology of these cells, before we can state where physiological processes end and pathological changes begin. The most suitable are the cells of the algæ, such as the *spirogyra majuscula* or *laxa*. These present a clear, transparent vegetable cell, in which the protoplasmic movements can be carefully observed with a moderately high magnifying power, and which can be preserved in a normal state for a considerable length of time. The forms most appropriate for the study of structural changes in the animal cell are the lower organisms belonging to the genus of protozoa, the class of rhizopoda, such as the *flagellata* and *ciliata*. Extensive observations have also been made on the *amœba radiosa* and *infusoria*.

It has been found that a variety of changes occurring in the cells of the *spirogyra* could be produced by artificial means, three different special forms being distinguished and described as (1) those identical with the physiological appearances occurring in the cells when they gradually die from nature's own causes, and especially those incident to indoor cultivation; (2) those of a purely chemical reaction; (3) a pathological condition produced by toxic substances which Naegeli termed "*Oligodynamische Erscheinungen*," and which, as the term indicates, he supposed to be a tearing loose of the chlorophyl bands from the protoplasmic cylinder. To bring about these conditions Naegeli used metals such as copper, silver, lead, zinc, and mercury. It was determined that all three phenomena could be produced by the use of the same chemical substance when employed in different degrees of strength, and that these changes were not qualitative but quantitative. The first was brought about with a moderately strong solution (1-500,000 parts), comparatively speaking, as none of the solutions were any stronger than 1-100,000 parts. The same morphological changes were produced that occur in the cells

of the spirogyra when they die a natural death or decay from some unknown cause—an observation so frequently noted in the cultivated specimens. The chlorophyl bands lose their color and are broken up into coarse rounded granules. The pyrenoides, with the leukoblasts, form larger or smaller granular masses, and after a time the protoplasmic tube retracts from the cell wall; the nucleus becomes somewhat enlarged and may be slightly pushed to one side or remain in the center.

The second was caused by a stronger solution (1-100,000) by direct chemical action. The whole content of the cell with the protoplasmic tube retracts from the cell wall; the chlorophyl bands alter in form and color without changing their general arrangement, and without separating from the surrounding parts. The protoplasm becomes cloudy and granular; the nucleus, formerly situated in the center of the cell, is pushed aside against the cell wall.

The third form described by Naegeli was produced by a very dilute solution (1-10,000,000 parts); the quantity of the metal present was so small that it could only be detected chemically by first evaporating 10 liters of the solution. Here he describes what appeared to him as a retraction or tearing loose of the chlorophyl bands from the protoplasmic tube. With this the nucleus was drawn to one side, the protoplasm became granular, and later (24-36 hours) the protoplasmic tube retracted from the cell wall.

The author determined that in the form which Naegeli described under (3), the chlorophyl bands do not tear loose from the protoplasmic cylinder, but there is a division of the tube into a very delicate inner cylinder, to which the chlorophyl bands are attached, and an outer, thicker portion, which remains attached to the cell wall. Sometimes it was observed that after the division of the protoplasmic cylinder the chlorophyl bands retracted from the inner portion of the divided cylinder, some of the bands remaining attached only by thin threads of colorless slightly granular protoplasm. If entirely separated, they sometimes collected into irregular masses, and their original arrangement could no longer be recognized. Very frequently it occurred that, some hours after the division of the protoplasmic cylinder, the outer part of this tube retracted from the cell wall, leaving the latter

perfectly clear; at the same time both the inner, delicate and the outer, thicker part of the protoplasmic cylinder could be distinctly seen, and from this it can be positively stated that this division takes place.

The *spirogyra majuscula* is particularly suitable for the study of intracellular changes; its chlorophyl bands are widely separated and the nucleus with its finer attachment can be distinctly seen; the protoplasmic movements are easily distinguishable, and the process, which terminates in the death of the cell, can be observed under the microscope from beginning to end. A great many other varieties of *spirogyra* were used. It was found that by putting pure copper foil, which was first thoroughly cleaned, into distilled water (the water having been distilled from a glass retort and all possibility of contamination from foreign substances excluded), and allowing it to remain there for from 12 to 24 hours, complete destruction of the *spirogyra* cells occurred, when treated with this fluid. A few drops of the water having been taken and placed on a glass slide, a few threads of *spirogyra* were put into this and carefully observed under a No. 7 Leitz objective. The protoplasmic current was plainly seen to become slower and slower, until it finally ceased, the protoplasm becoming more granular. After a few moments it was noticed that at the margin of the cell the chlorophyl bands retracted from the cell wall, or, to speak more correctly, there was a division of the protoplasmic tube, the inner part retracting from the outer, and carrying with it into the center of the cell the chlorophyl bands, these remaining attached to this delicate membrane. The fine filaments, which held the nucleus suspended in the center of the cell, became relaxed, the nucleus, which at first had appeared slightly oblong, was now round and somewhat enlarged, and could be seen more distinctly because it had become granular. After a time, if the fibers were allowed to remain in the copper water, it was noticed that the outer portion of the protoplasmic tube retracted from the cell wall, leaving the latter perfectly clear. After a separation of the inner membrane from the outer one, there was still a granular appearance of the whole cell, but as soon as the separation of the outer membrane from the cell wall occurred, the latter remained perfectly clear, showing without doubt that an outer membrane lining the cell wall exists, as well as an inner one surrounding the chlorophyl bands and nucleus.

Other metals—gold, silver, tin, lead, and mercury—were used in preparing the water with similar results, but none proved so satisfactory as copper. These experiments were carefully controlled by putting *spirogyra* threads into distilled water that had not been treated with the metal, when it was found that the specimens remained unchanged for weeks.

To study the action of toxic agents on animal protoplasm, a very low class of protozoa was selected. The rhizopodæ were very satisfactory. The *amœba difflugia oblonga*, *hæmatococcus pluvialis*, *paramœzium bursaria*, *spirostomum ambiguum* (Ehrbg.), *vorticella microstoma* and *stylongchia mytilus* were carefully observed. In all these cases the experiments ended in the death of these low forms of animal life, and considering the great morphological difference in the well-protected plant cell and the practically nude animal protoplasm, the action of the toxic substance can be regarded as parallel. As soon as the protozoa were brought in contact with the copper water, they became less active, and after a variable period of time (from 2 to 24 hours) all motion ceased; from having had an irregular outline, they now became round; those provided with cilia retracted them. A retraction of the protoplasm from its delicate covering, after the cilia had disappeared, was repeatedly observed in the *paramœzium*. The protoplasm, which before had been perfectly transparent, now took on a dusty appearance. The experiments with bacteria were very interesting.

Without reviewing in detail the significance of the above experiments, I will relate the results of recent investigations. With a view of throwing more light upon the study of intracellular structure and the earliest pathological changes occurring therein, the author instituted a series of experiments very similar to those just cited. In this series the same material as in the preceding experiments was used (the algæ and protozoa), but instead of employing a metal as the toxic agent, blood-serum obtained from patients suffering from various forms of so-called functional, nervous and mental disorders was used. I selected cases which were, with few exceptions, apparently instances of true functional neuroses. One cubic centimeter of blood-serum was diluted with 1 liter of distilled water (the water having been distilled by the process described above). In order to produce slow destruction

of so delicate a structure as the *spirogyra*, this alga must be treated with very dilute solutions of the toxic substance.

A filament of *spirogyra majuscula* was placed on a glass slide, and a few drops of toxic solution having been added, it was then observed under a moderately high magnifying power. At first the protoplasmic streaming could be distinctly seen, but in a very short time (1 to 2 minutes) it became slower and slower, and in about 10 minutes it had entirely ceased. The fine granules, that were carried along in the stream, were no longer propelled, but were in a constant tremulous motion, until the protoplasmic cylinder began to divide, when all signs of life disappeared. The inner part of the cylinder continued to retract, carrying with it the chlorophyll bands which were attached to it. Beyond a slight change in the color and in the general arrangement, nothing noteworthy occurred in the chlorophyll bands until later. The nucleus, that had been oval, became perfectly round and moved toward the periphery of the cell as the retraction of the inner membrane became more marked. The intranuclear substance became cloudy, and fine granules were seen to collect in masses. When the action of the toxin was allowed to continue, the outer protoplast retracted from the cell wall, leaving the latter perfectly transparent. Now a subdivision of the inner protoplast took place, and with this a separation of the chlorophyll bands into irregular masses lying here and there in different parts of the cell; the nucleus was still distinctly visible, but gradually disintegrated into a reddish-brown mass. To eliminate all possibility of error in the method, or contamination of the distilled water with other substances, a filament of *spirogyra* was placed in the distilled water, and, after several days, was found to be in a perfectly normal condition. This experiment was repeated several times with the same results; various forms of *spirogyra* were used, but with the exception of a difference in time the action of the toxin was the same. Very interesting changes were observed in the protozoa by treating the *hæmatococcus pluvialis* with distilled water containing the toxic serum. The movements of the cilia became markedly slower, and, in consequence, locomotion was also retarded; after a few minutes motion had entirely ceased; the cilia appeared shorter and thicker; the oval body took on a rounded form, a dusty appearance, and became somewhat

swollen. *Paramæzium bursaria* is very susceptible to the action of toxic substances, and dies rapidly when treated with them. Many other forms were observed with the same general results.

A great variety of pathological conditions were demonstrated in the ganglion cells of the higher animals as the result of injecting toxic serum of varying dilutions; the most remarkable feature was that the form of chromatolysis varied as the strength of the serum. For this purpose the guinea-pig and rabbit were selected. When 2 cubic centimeters of undiluted toxic serum were injected, the animal was at once thrown into convulsions, and in a few minutes death took place. Microscopic examination of the spinal ganglion cells revealed a loss of the peripheral chromatic bodies, while the perinuclear bodies had undergone disintegration. In the cerebral cortex different stages of chromatolysis were noted. In some cells the peripheral chromatic bodies and the dendritic spindles were normal, while in the perinuclear zone there was advanced chromatolysis; in other cells the chromatic substance was absent. If the serum was diluted with ten times its volume of distilled water and injected into the circulation of the guinea-pig, no convulsions occurred, but after five days of continuous action of the toxin death took place. Upon examination, most of the cells of the cerebral cortex showed peripheral chromatolysis, while no distinct or uniform nuclear changes were detected. Upon further dilution of the toxic serum (1-20) and after daily inoculations, if death did not take place within a reasonable period of time, the animals were killed after the continuous action of the toxin for ten days. In the cerebral cortical cells it was found that the chromatic substance had uniformly disappeared from the periphery; the chromatic bodies seemed to be aggregated in the central portion of the cell, giving the center of the cell a deep-blue appearance, when stained with methylene blue, while the periphery remained unstained. If the animal was allowed to live for 20 days, with daily inoculations of toxic blood-serum, the cortex cells presented a more advanced stage of chromatolysis, a more decided reaction occurred, and in some cells a beginning subdivision of the chromatic substance was observed; at the same time there was a decided change in the nucleus, which was displaced toward the periphery and appeared somewhat enlarged, with alterations in the chromatic portion.

When the toxic serum was allowed to continue its action for a longer period, the intracellular changes were more advanced, the chromatic substance was subdivided, some of the chromatic bodies were indistinct, and the achromatic substance was chromatophilic. The nuclei contained numerous granules, and the nucleoli were much enlarged. The same experiments were carried out with blood-serum from perfectly healthy individuals, with negative results.

From the results of the experiments detailed above, it is very evident that the cellular changes are quantitative rather than qualitative, and that such an inference is justifiable is very probable from the fact that long-continued action produces more advanced changes. That a toxic condition of the blood exists, and that it is a prominent factor in the etiology of disease is beyond doubt. Unquestionably many of the cerebral cortical cells are functionally inactive when these marked changes are present.

These experiments led to the establishment of a test for toxic states of the blood, which has been described in another paper.¹ This has enabled the author to examine a great variety of cases belonging to this class, and others in which bacterial toxins were the cause of the disorder, as in the acute specific infectious diseases, with constant results. It was interesting to note that the action of toxic blood of patients suffering from functional nervous disorders was quite as marked as that of those suffering from acute infectious diseases. It is thereby shown that the disease is not really a product of the structural alterations which may be present, but of a hurtful substance or poison capable of producing these structural changes. When we observe such cases early, we may well say that they are functional neuroses unless we recognize this condition, a toxæmia due to deficient metabolic power and retarded elimination, the injurious effects of which have been demonstrated in the above experiments.

Not only are the higher centers ill-nourished, but they are irretrievably damaged, their working power is annulled, and the whole train of evils follows even to insanity.

A considerable number of the individuals suffering from these maladies are from the outstart handicapped; they have inherited

¹ American Journal of the Medical Sciences, November, 1900.

a feeble organization, their resistive power is diminished, the functions are perverted most readily, and the entire organism reacts with readiness to these injurious attacks. It is therefore not surprising that an accumulation of a deleterious agent in the nutrient fluid of the body should overstimulate, depress, or destroy the functions of the nervous system, when morbid heredity previously exists.

LETTER FROM FRANCE.

BY DR. A. V. PARANT.

THE PARIS CONGRESS.—In the year just closing the Paris Medical Congress stands out as the event of prime interest in the medical world of France. The Section of Mental Medicine had on its calendar four great questions: The Psychoses of Puberty, with reports by MM. Marro, J. Voisin, Ziehen and Cullerre; The Pathological Anatomy of Idiocy, with reports by MM. Shuttleworth, F. Beach, Mierzejewski and Bourneville; Besetting and Impulsive Sexual Perversions from a medico-legal point of view; Reporters: MM. Krafft-Ebing, Morselli and P. Garnier; The Bed-Treatment of Insanity; Reporters: MM. Korsakoff, Neisser and J. Morel.

This last is a burning question in France, where it has excited passionate discussion before the Medico-Psychological Society and in the journals of the specialty. If opinions upon the results obtainable from this method have been diverse, it is chiefly because there has scarcely been agreement as to the procedure to be adopted, and, each having his own, the effects have naturally been various. Bed-treatment has had serious detractors and at the Congress MM. Mairet and Ardin-Deltiel, of Montpellier, and M. Doutrebente, of Blois, testified to numerous failures. It will, therefore, be of interest, I hope, to describe briefly the technique employed by the physicians who are satisfied with it.

M. Magnan was the first to practise this method of treatment on an extensive scale. The discussion at the Congress was all the more interesting on this account since M. Magnan had been chosen president by the vote of French alienists, of whom many had been his pupils during his thirty years of directorship at Saint Anne of the service of admission to the asylums of la Seine. Into his service enter all the insane committed by the prefectural authority of la Seine, and the greater number of those who are placed by their families in the asylums of that department. It is divided into quarters for men and women.

On the men's side the bed-treatment service is on the ground floor of the slight brick structure. Entrance to it is along a corridor, on each side of which are isolation rooms, two dormitories of eight beds each, with an end dormitory of four beds. These rooms are arranged in such a way as to resemble as much as possible hospital wards and thus to dissipate the idea of pavilions for disturbed patients which they have replaced. The impression that one experiences on entering may be summed up in these words: light and cleanliness, differing in this respect from provision for the disturbed insane elsewhere. The iron beds are of the ordinary pattern; the walls, decorated with engravings and a mirror, are wainscoted in oak to half their height. The furniture of each patient consists of his bed, a night table, a chair and a small carpet. In the center is a buffet on which there is always a green plant. Four windows furnish light for the two larger rooms, two for the small one and each is separated from the others by a glazed door. There is an isolation room fitted up for patients suffering from contagious diseases. The three isolation rooms for very disturbed patients, having inlaid floors and furnished only with a bed, are lighted by a door and a window glazed with thick, unbreakable glass. They are occupied by disturbed patients only during the day. Into the dormitory open the doors of the water closets, a small kitchen and a douche room. A little beyond are the baths. A padded cell is reserved for emergency cases of epileptic furor. A court, planted with trees and lighted by gas, adjoins the pavilion.

In the women's division the quarters for bed-treatment are on the first story. There are two dormitories of eleven and twelve beds each, and in the same corridor several isolation rooms. The arrangement of the common and isolation rooms is identical with that in the men's service. Patients undergoing bed-treatment break their fast with a soup at seven o'clock, take at eleven a meal differing from that of the other patients only in that it is a little more nourishing, and at five o'clock they dine. At eight o'clock all lights are lowered except in the case of patients suffering from alcoholic delirium, whose rooms are kept lighted by a special reflector. During the day all are required, except when otherwise indicated, to rise for a variable time, between noon and four o'clock in summer and for a shorter period in winter, the

duration of the walk being prescribed in each case by the physician. The men take their exercise in the adjoining garden, but provision is defective in that there is no covered shed, so that when it rains they are compelled to walk in the dormitory. The women walk in a court common to other patients.

The nursing in the men's division is done, under the direction of a supervisor who has other functions, by an assistant supervisor, assigned especially to this service, two nurses in the eight-bedded rooms and one in the four-bedded room, this number being constantly on duty. Surveillance being a prime factor in the success of this method of treatment, M. Magnan holds his nurses to the strictest accountability. The nurses receive special instructions. They must know their business thoroughly. As M. Magnan says: "A great difficulty at the outset is to accustom the nurses to remain attentive but almost always passive spectators, and to interfere only in cases, which are quite infrequent, where the patient gets out of bed, is disposed to assault his neighbors, to destroy surrounding objects, or again where melancholiacs are tempted to suicide." The night service, from eight in the evening to six in the morning, is provided for by watchmen selected from the best attendants, and equal in number to the day staff. There is, therefore, night and day one nurse for four patients and an assistant supervisor over all. Each has a chart upon which he inscribes the treatment, diet, attitude, temperature, stools and all the incidents of the daily life of the patient committed to his care. In the women's service there are two nurses in each room and one extra. An assistant supervisor directs them under the authority of a chief. The daily programme is the same as in the men's service.

The entire personnel is abstinent as to wine and alcohol. The use of mechanical restraint, whether in bed, in the bath or on the patient when up, is forbidden. A *maillot* is applied as clothing only to patients who cannot be prevented from destroying their own; it involves no restriction of movement, the arms and hands being entirely free. Of course, the frequent presence of the physician and internes is indispensable to the enforcement of the rules.

In the asylum at Villejuif (Seine) M. Briand has thirty-three beds in one women's dormitory with but two day nurses and at

night a single watch, who has in addition other duties to perform. Being able to give but few baths and not getting his patients up, M. Briand must use hypnotics freely. In these defective conditions may be found, perhaps, the reason that he is not well satisfied with bed-treatment.

The service of M. Toulouse, also at Villejuif, is most like that of M. Magnan. However, it presents an appearance less bright, more barren and more somber. There are sixteen beds separated into two rooms by a wooden partition reaching half way to the ceiling. A bath room adjoins—a very convenient arrangement. The excited patients are bathed from two to five hours a day. There is one nurse for every four patients, day and night. They are required to record from hour to hour, by certain signs, the mental condition of their patients. The isolation rooms have grated windows. The patients walk for two hours. "The excited patients go in groups and are quiet, the more so the more numerous they are."

At the St. Luc Asylum at Pau, Clausolles has separated the maniacal from the melancholic patients. He has been obliged to use inconvenient quarters and thus to have recourse to cells at night. He instructs his nurses to use no restraint, to make the patient understand his condition, to divert convalescents and to take untidy patients frequently to the closet. He has experienced numerous disadvantages in the employment as assistants of convalescent patients, who are sometimes brutal and may undergo relapse by contact with excited cases. He prescribes baths, hypnotics and overfeeding. At first, after being kept in bed constantly, his patients got up for two hours at the end of a month, gradually extending the period, but now Clausolles has reached the conclusion that it is better to give them a daily walk from the beginning.

Bed-treatment has also been applied to quiet patients. At the private asylum at Ville Evrard (Seine) M. Sérieux does not practise it in a special pavilion.

He is of the opinion that it is not possible of application in separate rooms, M. Sérieux, of the asylum at Lyons, to the contrary notwithstanding. M. Sérieux separates the maniacal from the melancholic patients. They are not on special diet, but they are systematically purged. They are given an hour's walk morning and afternoon. There is an adequate staff of nurses.

What patients are likely to profit by bed-treatment? All those who need rest of brain and body. It is the fullest application in psychiatry of the principle of general therapeutics which demands rest for the organs affected. Consequently in all the acute psychoses, as well as in all acute episodic conditions in the course of chronic diseases, benefit is likely to accrue to the patient by reason of the more acute therapeusis and surveillance that bed-treatment entails.

The possibility of caring for excited patients in this way is an indisputable fact. "In mania and maniacal conditions," says Magnan, "the excitement, no matter how great its violence, subsides in the course of a few days. The maniac in bed continues his activity, gets up at first, but soon, while still disturbed, ends by not leaving his bed, or, if he does, lies down again promptly, on simple invitation, to give himself up to excitement on his bed." Imitation of his neighbors also has its effect upon his mind. The difficulties encountered by Magnan in treating all sorts of excitement are set out in the thesis of Gochon. In a total of 846 disturbed patients hydrochlorate of hyoscine was indicated but ten times. "It is an excellent remedy," says Magnan, "but we have purposely limited its use in order to hush the cry of the 'chemical camisole' from the opponents of the bed-treatment." Hypnotics (chloral) were rare; baths were short. Isolation was practised but nine times in the case of turbulent demented whom it would have been easy to keep in bed, but who disturbed the peace of the wards. These, by the way, are hardly proper cases for bed-treatment in a common room, except where there is serious excitement or intercurrent disease. Bed-treatment will sometimes present difficulties in hallucinatory conditions where there is violent reaction, in which case isolation will be necessary, together with hyoscine and occasionally the *maillot*. In certain cases of unconscious agitation in idiots and in the last stage of paretic dementia, bed-treatment will be impossible. The same may be said of furious epileptics, the only patients for whom M. Magnan keeps a cell by way of precaution, without having as yet used it, however. While the treatment is indicated in frank mania, especially good results have followed its use in alcoholism. These unfortunate patients, scared by their hallucinations, especially at night when they are in cells, exhaust themselves in futile

attempts to combat their terrifying visions unless they are prostrated by large doses of chloral. Under bed-treatment, the presence of nurses reassures them and attracts their attention, and if their hallucinations persist, the room is abundantly lighted, when, "reassured by the substitution of physiological stimuli for their hallucinations, they soon go to sleep without hypnotics." By adopting this procedure Magnan has succeeded in averting death in acute alcoholism in cases where there are no visceral complications.

In mental confusion, in which it has been said that bed-treatment aggravates the condition, Chaslin advises rest in bed "since the bodily condition of the confused person is that of a veritably sick man." In melancholia the treatment meets with few opponents. Guislain had said, "No method has given me more satisfactory results in melancholia." Belle and Lemoine applied to melancholia a treatment based upon that of Weir Mitchell for neurasthenia, and, following their lead, this same treatment, modified by walks, has been applied in France to melancholiacs, who accept it quite willingly. It is only in agitated anxious melancholia that the plan is difficult and Briand has given it up in those cases. A nurse must be constantly at hand to induce the patient to lie down again whenever he gets up, and the bed may thus become for him a means of restraint that is warranted only by the benefit that he derives from it.

Garnier and Cololian recommend bed-treatment in certain states that are akin to the psychoses, e. g., in morphinism to counteract the distress and agitation of the first days of treatment, as well as the cardiac disturbance; in the frequent crises of epilepsy; in hysteria, in which it may sometimes be serviceable; in neurasthenia, of which the Weir Mitchell treatment is classic in France. It is also indicated in all states of exhaustion, whatever their cause, and in the intercurrent diseases of the insane. Contra-indications, according to Briand, in acute cases, would be too great excitement and the anxiety of melancholiacs; general paralysis in its first stage, according to Garnier, to avoid congestion of the cerebral cortex. Finally, it should be discontinued after a variable time when it is no longer effective. French alienists claim for it the same advantages that their foreign brethren recognize. Briefly summarized these are:

The causes which produce this great excitability of disturbed patients lose their effect; sleep comes promptly and is refreshing; the causes of exhaustion disappear, even the excitement diminishes oftentimes, so much the more, according to Clausolles, that the patient is in a special room—an opinion, however, at variance with that of Magnan. According to the thesis of Meunier, interne of Toulouse, the daily agitation is longer and less intense, with a quieter night but less sleep. It is true, he says, that the patients are up only two hours a day. Loss due to excessive motility is repaired, and one no longer sees maniacal furor as the result of exhaustion if the nurse knows how not to restrain the patient but to persuade him to remain in bed.

Depressed patients are painfully affected, according to Magnan, by association with maniacs, and receive less attention at the hands of nurses. Bed-treatment in their case combats the general exhaustion, the insomnia and the influence of the external temperature upon those who are inert; visceral complications diminish; under better surveillance the appetite improves and there are fewer opportunities for suicide; withdrawn from external excitement, patients suffer less from intense moral pain and less from their aboulia; there is rest of brain and will, in consequence of which hypnotic and sedative medicines may be prescribed with minimum frequency and quantity.

In all the patients the bodily functions are regulated; the heart and lungs tend to the normal; the peripheral circulation improves; the brain has a better blood supply. Respirations become less frequent, the central temperature is lowered, and the general nutrition improves with the increased assimilation. The patient gains in weight—a sure sign of improvement. It is worth noting, however, on the testimony of Toulouse, Marchand and Meunier, that the weight steadily diminishes during the first four days, more irregularly later. The skin is more active. The red globules are less disintegrated, which is an indication for treatment in cases of anæmia and chlorosis. Finally, hallucinations are less active.

The inconveniences of the treatment are very few. Masturbation is pretty frequent, but is it more so in bed than in the cell? Constipation is easily treated; anæmia, emaciation, trophic dis-

orders and hypostatic pneumonias occur only when patients are not required to take exercise. Untidy habits become very rare if one takes care to have the patients taken regularly to the closet.

There is still another advantage for the patient in that he is no longer considered a prisoner, but a sick person, which is an important factor in moral treatment redounding to his own profit. Not only is he so regarded by the physician, but by the nurses, the family and by himself.

The asylum gains in point of discipline. "Let any one who has seen the disturbed quarter with its court, its day-room, its cells, where all is tumult and disorder, and where everything presents a repellent aspect, pass into a bed-treatment service, which is, in fact, a hospital ward, and he will instantly recognize the vast progress that has been effected." The staff, too, gains an advantage. Its work is less wearing and the surveillance is easier. A greater sense of safety renders the nurse less defiant. The physician can examine with greater ease a patient who resists much less and whom it is not necessary to undress. Pathological incidents are less likely to escape notice and therapeutics is more convenient. Finally, cost of maintenance is reduced by reason of simplified service and a saving as regards the destruction of clothing and furniture. In new asylums the cost, often considerable, of the construction and maintenance of cell-quarters is saved. In this way the extra expense of an increased staff is offset.

Such, then, are the advantages of bed-treatment; but one may add that it is not an exclusive method; it is, in fact, the basic principle of treatment of every acute psychosis; other therapeutic agencies will often have a more restricted field while others will still be necessary, especially baths, the best auxiliary of bed-treatment, which Sollier has proposed to replace by prolonged immersion. There are other good adjuvants, such as massage and electrotherapy in muscular atrophy, not forgetting general hygiene and moral treatment.

In brief, decubitus is an excellent principle of treatment in acute conditions. While conducing to improvement, it tends to preclude complications. It is favorable to the patient, who is treated better and raised in dignity; to the physician, who is in a position

to know his patient more thoroughly; to the personnel, treated with greater consideration, as well as to the administration in the saving of money. It is almost always practicable. The disadvantages are slight. It always demands the frequent presence of a physician and a well-trained staff of nurses. Finally, in order to its success, one must not lose sight of a point to which all its advocates attach great importance, namely, daily walking and exercise for at least two hours and often more. This it was, by the way, that led a high-spirited alienist to say of bed-treatment that it is the more efficacious the less the patient stays in bed.

RECRUITING MEDICAL OFFICERS IN ASYLUMS.—A public competition occurred last June in order to recruit the medical service of French asylums. It was the first in four years. In France the indigent insane are placed either in the asylums belonging to the departments or in such private institutions as may have contracted with the authorities for their treatment. The competition is intended only to recruit physicians for the public asylums. Candidates are appointed to discharge at first the duties of assistant physician, and, a few years later, those of medical director, or of physician-in-chief in an asylum having a non-medical administrative director. This competition was instituted in 1888, physicians having previously been appointed directly by the prefects. At first the examination took place in every town that was the seat of a medical faculty, of which there were seven: Paris, Lille, Nancy, Lyons, Bordeaux, Toulouse and Montpellier. This year, however, the districts were enlarged by diminishing their number to four. Thus the tendency is towards a single *concours* for all France which shall occur with a greater frequency than now obtains, and have, besides, the advantage of affording a common source of supply for all the physicians in the public asylums. On the other hand, however, it would have the drawback of centralizing too much the recruiting of candidates in Paris at the expense of provincial medical schools. The project thus meets with some opposition, making it impossible to predict which opinion will in the end prevail.



Proceedings of Societies

MINUTES OF THE EIGHTH MEETING OF THE ASSOCIATION OF ASSISTANT PHYSICIANS OF HOSPITALS FOR THE INSANE.

The eighth meeting of the Association of Assistant Physicians of Hospitals for the Insane was held at the Central Indiana Hospital for the Insane, Indianapolis, Indiana, September 26, 27 and 28, 1900. The following members were present: Drs. Edmund Ludlow, Max A. Bahr, Sarah Stockton, F. M. Wiles, P. J. Walters, Fred. L. Pettijohn, Central Indiana Hospital for the Insane, Indianapolis, Ind.; Drs. R. T. Darnell, S. R. Cunningham, Northern Indiana Hospital for the Insane, Logansport, Ind.; Drs. George R. Love, A. F. Sheperd, Toledo State Hospital, Toledo, Ohio; Dr. Charles W. Thierry, City Asylum, St. Louis, Mo.; Drs. E. F. Enos, V. Podstata, Violet H. Palmer, Illinois Eastern Hospital, Kankakee, Ill.; Dr. H. R. Niles, Oak Grove Sanitarium, Flint, Mich.; Drs. Jason Morse, Irwin H. Neff, Eastern Michigan Asylum, Pontiac, Mich. The following guests were present: Dr. E. C. Runge, Superintendent St. Louis Asylum, St. Louis, Mo.; Dr. John B. Briggs, Central Indiana Hospital for the Insane, Indianapolis, Ind.; Dr. George F. Edenharter, Superintendent Central Indiana Hospital for the Insane, Indianapolis, Ind.; Dr. M. D. Sedan, Indianapolis, Ind.

FIRST SESSION, SEPT. 26, 3 P. M.

The President, Dr. Fred. L. Pettijohn, presided. Dr. George F. Edenharter, Superintendent Central Indiana Hospital for the Insane, made an address of welcome. The minutes of the Seventh Meeting of the Association of Assistant Physicians of Hospitals for the Insane, held at the Cleveland State Hospital, Cleveland, Ohio, September 26, 27 and 28, 1899, were adopted,

as printed in the AMERICAN JOURNAL OF INSANITY for January, 1900. The Executive Committee recommended the following names for membership, elected: Dr. Charles W. Thierry, City Asylum, St. Louis, Mo.; Dr. George R. Love, Toledo State Hospital, Toledo, Ohio; Drs. Samuel C. Gurney and Anna J. Clapperton, Eastern Michigan Asylum, Pontiac, Mich.; Dr. John S. Tierney, Cleveland State Hospital, Cleveland, Ohio; Drs. Claude F. Shrouts and Violet H. Palmer, Illinois Eastern Hospital, Kankakee, Ill.; Drs. R. T. Darnell and S. R. Cunningham, Northern Indiana Hospital for the Insane, Logansport, Ind.; Drs. Edmund Ludlow, Max A. Bahr, Sarah Stockton, F. M. Wiles, P. J. Walters, Fred. L. Pettijohn, Central Indiana Hospital for the Insane, Indianapolis, Ind. Dr. George F. Edenharter, Central Indiana Hospital for the Insane, was recommended and elected to honorary membership.

The following resignations were accepted: Drs. William O. Mann, T. F. Fitzgerald, M. O. King, E. H. Robertson, Emily F. Wells. The secretary then made the following report:

SECRETARY'S REPORT.

As will be noticed by reference to the programme, the recommendations made by the committee at the last meeting of the Association, regarding papers for the Association, have not been carried out. It was found impossible to adhere to the plan. Several attempts were made, but unfortunately the difficulties encountered could not be overcome. It is hoped that by the next meeting of the Association the plan can be tried, at least in part.

The arrangement of the papers as recommended by the committee has much to commend it, and it would seem that the matter should be again taken up, and that the representatives present from each hospital should pledge themselves to furnish a paper on one of the numerous topics. It has been the aim of the Association to develop the scientific work of the assistant physicians. It stands to reason that the selection of a topic for a paper at an early date would result in a thorough treatment of the subject chosen. As has been pointed out by the committee, a hospital could choose a subject in which it is more particu-

larly interested. The plan as outlined has sufficient scope to allow of the selection of any subject. Another point to consider is the enhanced value of the discussions. It is the opinion of the committee that the only solution of the problem is by voluntary pledges of papers at the time of the meeting.

The secretary would again call attention to the extreme difficulty he has in keeping track of the members, and would respectfully suggest that they notify him of any change of address. At the Cleveland meeting our committee decided that arrears in membership dues for two years should constitute forfeiture of membership. I have had some difficulty in locating delinquent members, and it would only seem just that action in this matter be postponed until the next meeting.

Another matter which should receive individual attention is the endeavor of each member to secure the payment of the expenses of delegates from the hospitals represented. This subject has before been freely discussed, but it should be kept in the foreground, and each member should do his best to further its accomplishment.

It has been suggested by some of the members that our meetings be held in a more central locality. By so doing they believe that we could secure an increased attendance. Granting that this might result, it seems to us that the disadvantages of such a course would negative it. If it could be possible to hold the meetings in a city with an easily accessible hospital for the insane the idea might be practicable, but it does not seem at present as if our present plan of meeting should be changed.

Secretary's report accepted.

Treasurer's report read and accepted.

The following officers were elected for the ensuing year: Vice-President, Dr. V. Podstata, Illinois Eastern Hospital, Kankakee, Ill.; Secretary and Treasurer, Dr. Irwin H. Neff, Eastern Michigan Asylum, Pontiac, Mich. Members of the Executive Committee, in addition to those mentioned above, Dr. R. T. Darnell, Northern Indiana Hospital for the Insane, Logansport, Ind.; Dr. A. F. Sheperd, Toledo State Hospital, Toledo, Ohio. Adjournment, 3.40.

SECOND SESSION, SEPT. 26, 7.45 P. M.

The President extended an invitation to the guests to participate in the discussions. Dr. Jason Morse, Eastern Michigan Asylum, Pontiac, Mich., read a paper by Dr. W. A. McCorn, Rivercrest, Astoria, Long Island, N. Y., on "Hallucinations: Their Origin, Varieties, Occurrence and Differentiation." Discussion: Drs. Pettijohn, Cunningham, Darnell, Sheperd, Niles, Runge, Briggs, Ludlow and Neff.

Dr. Fred. L. Pettijohn, Central Indiana Hospital for the Insane, read a paper on "Consideration of Psychiatry, with Asexualization as a Means of Prevention of Degeneracy." Discussion: Drs. Love, Cunningham, Briggs and Neff.

Dr. H. R. Niles, Oak Grove, Flint, Mich., read a paper by Dr. Will. MacLake, Eastern Michigan Asylum, Pontiac, Mich., on "A Report of a Case of Diabetes, with Remarks on Treatment." Discussion: Drs. Cunningham, Ludlow, Briggs and Neff. Adjournment 9.45.

THIRD SESSION, SEPT. 27, 10.15 A. M.

Dr. H. R. Niles, Vice-President, in the chair. Dr. E. F. Enos, Illinois Eastern Hospital, Kankakee, Ill., read a paper on "A Case of Punctured Wound of the Brain." Discussion: Drs. Darnell, Ludlow, Sedan, Palmer, Pettijohn and Briggs.

Dr. V. Podstata, Illinois Eastern Hospital, read a paper by Drs. V. Podstata and A. F. Lemke entitled "Delirium in Its Various Forms, with Special Reference to Differential Diagnosis and Prognosis." Discussion: Drs. Runge, Neff and Cunningham. Adjournment 12.10 P. M.

FOURTH SESSION, SEPT. 27, 2.45 P. M.

Dr. John B. Briggs read a paper on "Systematic Relations of Bacteria and the Infectious Diseases." Discussion: Drs. Ludlow, Runge and Pettijohn.

Dr. Edmund Ludlow, Central Indiana Hospital for the Insane, read a paper by Dr. Theophil Klingmann, Pathologist to the Michigan Asylum, Ann Arbor, Mich., on "A Contribution to the Pathology of So-called Functional Neuroses." Discussion: Drs. Briggs, Runge and Darnell.

Dr. Irwin H. Neff, Eastern Michigan Asylum, Pontiac, Mich., read a paper on "The Use of Hypnotics and Sedatives in the Insane." Discussion: Drs. Pettijohn, Podstata, Darnell and Ludlow. Adjournment.

In the intervals between the sessions visits were made to the different parts of the institution. Frequent inspections were made of the pathological department, and several demonstrations were given by Dr. Briggs and members of the hospital staff.

The time and place of the next meeting were left to the decision of the Executive Committee.

Upon motion of Dr. Niles the thanks of the Association were extended to the superintendent and staff of the Central Indiana Hospital of the Insane.

IRWIN H. NEFF, Secretary.

Notes and Comment

NURSING IN HOSPITALS FOR THE INSANE.—Dr. R. H. Chase of the Friends' Asylum at Frankford, has given an excellent and suggestive paper entitled "A Plea for the Asylum Nurse" in the *National Hospital Record*, from which we make the following extract:

If young women, who, in large numbers, are seeking employment with the sick in general hospitals, only understood the advantages to be had in asylum nursing, it would suffice, I believe, to set the current in this direction, abounding, as it does, in promise of a still better way. Apropos of the subject, a prominent English superintendent of nurses writes: "There is one word to be said to the would-be nurses who storm our hospital portals. Why not become asylum nurses? There is no disease that requires more careful and skillful nursing than mental disease. The era of trained nursing in asylums has dawned, and men and women endowed with sympathy for suffering, and with good health and intellectual gifts, may find a new vocation in attendance on the insane. All the pretty accomplishments learned at home are keenly relished within the asylum, where brightness and hope are the chief things needed. The work is amongst the highest to which it is possible to put the hand, but it calls for some self-sacrifice. Surely, if we take the degrees of comparison, it is well to be a 'home' nurse and capable of caring for one's relations, it is better to be a 'hospital' nurse and equal to attending on the stranger who is physically ill, but it is best to be an 'asylum' nurse and minister to the mind diseased."

Nursing the insane, though said to date back sixty years, before the development of systematic nursing in general, did not receive any special attention until the years between 1880 and 1885, when by the efforts of a few asylum physicians, the movement began to grow. Already it has gone on apace and a strenuous spirit of reform has spread wide and far. There are now about thirty-five training schools throughout the United States attached to institutions for the insane, and about ten others which give instruction to nurses without a regularly organized school. They are widely dispersed over the country, and are connected, as might be inferred, with the best asylums in America. The idea seems to prevail in some quarters that not only the knowledge attained in asylum schools is inferior to that gained in the schools of the general hospital, but that the former are qualified only to teach the special branch of nursing re-

quired in them. This is manifestly an injustice. In a few obvious instances it is presumed that there are drawbacks, but, on the other hand, these are offset by advantages of no less value. We would not claim for the asylum an abundance of applied knowledge in some particulars, for example, in surgical nursing, but this is not valid reason for putting these graduates under a ban. A nurse so taught may easily supplement her training with a term of service in a post-graduate course at a general hospital. Indeed, the asylum schools possess merits which are peculiarly their own. In them there is not only an equal opportunity for instruction by means of lectures, but in many of the asylums sufficiently varied illness is always at hand to afford ample practice for training in the general principles and in the technique of ministering to the bed-ridden sick. The young woman who becomes skilled in mental nursing acquires, in her education, a wholesome development of character, by the drawing out of those qualities that are so needful to success in her life work. Patience, forbearance and discernment are some of these qualities, which are, to a great degree, demanded, and by reason of this training she is better fitted for her trying duties than by the mere advantage of a larger familiarity with the details of the sick-room. From the very nature of the maladies treated, she forms, also, the habit of being more keenly observant of her patient. It is this process of lifting up the character of the nurse which constitutes the chief element of her training. In this connection Dr. Cowles says: "The true philosophy of the matter lies in the fact that work in mental nursing trains the woman; it is a most general and fundamental training of character, self-control, and the Christian graces." "A nurse of large experience in mental nursing," he adds, "after a term of service in a general hospital, was asked what the difference was between the two kinds of nursing. She answered: 'In a general hospital the patient must please the nurse; with the insane the nurse must please the patient.'"

We would claim, too, for the student of mental disorders during her term of pupilage greater compensation, and beside, a set of duties and a course of studies over and above what the ordinary trained nurse acquires—studies which open a field of which the other knows almost nothing. In short, this field constitutes a peculiar study, and gives a peculiar fitness for a peculiar work. The hospital for the insane, unlike the general hospital, gives its nurses steady future work within the hospital in which they have pursued their education, instead of immediately pushing its graduates out into the world, forcing them into a sharp competition under unfavorable conditions. The latter frequently go forth to reap at best only partial and not steady success and work.

Moreover, in the branch of private nursing, the field is large, and it is not lacking in remunerative work at rates equal to that in other departments of nursing, and the asylum school will not be found backward in furnishing its quota of competent and trusted workers. Nursing the nervous and insane is growing into a profession which in its tendencies

is progressive, and when properly pursued will lift the worthy nurse above the common toils, in proportion as she devotes her energies to it. It is proverbial that the general hospital nurse has neither the interest nor the qualifications to undertake the care of insane patients; indeed, they frequently manifest a dislike if not a repugnance for it. For those trained in nervous and mental nursing, here then, is the vantage ground in competition with them.

GOVERNOR ODELL AND THE STATE CARE ACT.—Among other irksome innovations incident to the passage of the State Care Act in New York was a scheme of purchasing supplies known as "the estimate system." A more roundabout method of reaching results, or more wearing to its victims, it would be difficult to conceive. Briefly, every item of expenditure, from a paper of pins to a steam engine, must be estimated for two months in advance and revised at the office of the Lunacy Commission. Without such revision and audit no purchase can be lawfully made, local managers, under the act, having been shorn of every vestige of financial authority. At first once a month, later once in two months, the State hospital superintendents, a numerous body of men, gathered together in Albany, at considerable expense, from all the corners of the State to discuss ways and means, in conference with the Commission, and to have their estimates revised. The inevitable tendency of such a system is to make machines of men and to degrade medical superintendents to the rank of clerks to a central authority. It paralyzes initiative and stunts growth. Soon it came to pass, when estimates were repeatedly cut or disallowed, often without reference to the merit of the requisition but merely as an exigency of economy, that superintendents lost heart and ended by letting things drift. Ambition to excel oozed away under the pressure of a cramping system, since excellence can only be achieved by means to do. Meanwhile statistics were forthcoming at all times to demonstrate the superiority of the new system. Money had indeed been saved, but for the lack of its equivalent in material and perishable things there had been suffering and discontent at the hospitals. All this was foreseen of the fathers at the outset.

Relief is apparently at hand. The new Governor of New York addresses himself to the situation in his message in these significant words:

"The old system of permitting the Board of Managers to be in absolute control of their various institutions was an incentive to economy and general good management, and if again instituted would probably result in additional saving to the State. At present the Boards of Managers are mere figure-heads. The stewards and superintendents are called to Albany bimonthly. A careful perusal of all that has been done by them at these meetings convinces me that the advantage gained is not commensurate with the expense incurred. It seems to me that all of their business could be equally well prosecuted if they remained at their various institutions instead of coming to Albany. We should be liberal, but not extravagant. We should not permit a false economy to stand between the State and the proper care of the patients, but stories of extravagance that have come from the institutions are such as to justify the most rigid investigation by you as to the management of the State hospitals for the insane. I believe that with no harm to these institutions, a saving of at least three-quarters of a million dollars can be effected in this department."

Not a superintendent but will hail with satisfaction the prospect of a restoration of the old conditions so far as the purchase of supplies is concerned. With a stipulated per capita allowance, managers and superintendents will be kept within bounds, and there is no ground for belief that expenditures will be made otherwise than prudently. It is evident that Governor Odell's views, if carried into effect, will necessitate amendment of the State Care Act and involve reorganization of the entire service. Let us hope that during his term substantial atonement will be made for the great violence that has been done under the State Care Act to the principle of local self-government. The future is full of promise. But Governor Odell must not be disappointed if he does not show a saving in this department at the end of the year of "at least three-quarters of a million dollars."

RECOMMENDATIONS OF THE NEUROLOGICAL SOCIETY AS TO THE NEW YORK STATE PATHOLOGICAL INSTITUTE.—At a meeting of the New York Neurological Society held January 1, 1901, the following report was read and unanimously adopted:

The committee of the New York Neurological Society, ap-

pointed at the request of the President of the New York Commission in Lunacy, to offer suggestions as to the scheme of scientific study of mental diseases in connection with the State Hospitals for the Insane, begs leave to report as follows:

1. It is to the interests of the State that original research work should be carried on in relation to insanity, in order that the science should be advanced, and better methods of prevention, treatment and cure, discovered. This is of direct interest to the taxpayer, upon whom falls the burden of the care of the insane.

2. There should be one central laboratory in the State, wherein the energies of the best scientific men in the various departments of medicine related to insanity should be devoted wholly and exclusively to the prosecution of original research.

3. Such a laboratory, combining the labors of well-qualified workers in general pathology, neuropathology, psychology, chemistry, anthropology, and other requisite branches, should be able to produce from year to year results which would be creditable to the State as a patron of science, as well as invaluable in advancing the knowledge of the methods of treatment and cure of mental disorders.

4. Each hospital for the insane should have upon its staff of medical officers one physician whose sole duty it should be to conduct ordinary autopsies and to carry on the routine duties of a clinico-pathological microscopist.

5. The central laboratory, or Pathological Institute, should be freely open to any qualified scientific men for the prosecution of original research work, under the direction of the laboratory experts, preference always being given to the qualified men in the State hospitals. But systematic teaching of fundamental principles should not be required from any of the departments of the laboratory. The scientific men in charge of the various departments of the Pathological Institute should devote all their energies to original investigation and not be taxed, hampered or interfered with by medical men who are able to obtain instruction in fundamental principles elsewhere, without cost to the State.

6. The central laboratory for original research should be a part of a reception hospital for the insane situated on Manhattan Island.

EPIDEMICS OF DYSENTERY IN INSTITUTIONS FOR THE INSANE.
—We publish in another portion of the JOURNAL a painstaking and exhaustive review of Gemmel's book on Ulcerative Colitis, from the pen of Prof. S. Flexner of the University of Pennsylvania. The review is the more valuable because of the well-known character of Prof. Flexner's work while a member of a Medical Commission in Manila upon the etiology of Tropical Dysentery. He was then able to isolate a bacillus which had previously been described by Shiga in Japan as connected with tropical dysentery there and to show that it was the cause of an epidemic of dysentery which was then raging among the American troops at Manila. Subsequently he found that Shiga's bacillus was identical with a bacillus which had been discovered to be present in cases of dysentery in the island of Porto Rico. The same bacillus also has probably been described by Kruse in Germany. There is, consequently, every reason to think that the bacillus of Shiga is the causative factor in all cases of acute dysentery. In view of the fact that epidemics of acute dysentery sometimes occur in crowded institutions for the insane, Professor Flexner is anxious to ascertain whether or not such epidemics may not be due to the same bacillus. The Editors of the JOURNAL would accordingly request any officer connected with an institution for the insane to notify them of the outbreak of an attack of dysentery to the end that the causative relation of the so-called bacillus of Shiga to it may be established or disproved. Prof. Flexner will arrange to have the disease studied bacteriologically without expense to the institution. He also desires to study the same disease in barracks and prisons in case of its development there. It is generally thought to be prevalent where large numbers of persons are massed together under unfavorable hygienic conditions.

DR. BERKLEY'S REPLY TO LIFE.—Within a few weeks *Life*, a weekly comic paper published in New York, printed a libelous attack on Dr. H. J. Berkley of Baltimore. The paragraph was illustrated by a figure of Death holding in one hand a scythe and in the other a bottle of medicine and at his feet a buzzard. The paragraph reads as follows:

SEND ON YOUR RELATIVES.

We recommend the City Asylum at Baltimore for heirs and such like having insane relatives of property who are in the way. There is a very pretty record of some experiments made on the patients by Henry J. Berkley, M. D., of the Johns Hopkins University. Recognizing the fact that the extract of the thyroid gland, when administered to human beings, produces poisonous symptoms, and that "when this administration is pushed even to a moderate degree, *death is almost invariably the result*, either through the advent of convulsions, or extensive loss of weight *with indications of profound poisoning* of the central nervous system," he decided to make some experiments upon eight insane patients of the City Asylum.

We skip the details, which are appalling, and, considering the epoch and the country, incredible. Of the eight victims, two became frenzied, one "absolutely demented and degraded," and two died.

What better advertisement for the City Asylum at Baltimore?

Send your feeble-minded relatives of property right on to Dr. Berkley. No sickly sentiment about him!

It is gratifying to note in a later number of *Life* the following reply:

EDITOR OF LIFE.

Sir:—Under the caption "Send on Your Relatives," in a recent issue of *Life*, you publish a libelous and untrue version of a medical article, on the action of thyroid extracts, of which I am the author. As your authority for the statements therein contained, you cite a certain pamphlet entitled "Human Vivisection," printed for the American Humane Society, and do not extend your researches to the original paper for verification of your presentations. Had you done so, you would have seen that the excerpts from the original were deftly twisted to meet the aims and purposes of the anti-vivisection collaborator, and were woven together to produce an entirely opposite meaning from that of the original.

I am, first of all, accused of performing "experiments" upon the human being. Experiments in the sense of scientific investigations can hardly be objected to, provided they are intended for the good and not harm of the patient. Again, in misleading you, the writer of the travesty upon my paper in "Human Vivisection" has adroitly applied the result of the researches upon animals to the investigations upon the human being to suit his own purposes in that portion of the article quoted by you: "When the administration is pushed to even a moderate degree, *death is almost invariably the result* (the italics are your own), either through the advent of convulsions, or extensive loss of weight with indications of profound poisoning of the central nervous system." This sentence applied solely to animals and not to man.

Now it is expressly stated at the beginning of the original article

that the purpose for which the thyroid tablets were administered to the patients was to give them a chance to recover their mental vigor, "as they had either passed, or were about to pass, the limit of time in which recovery could be confidently expected;" in other words, they were already demented or were about to become so. In the same column it will be seen that the thyroid was administered only under the strictest precautions, beginning with the minimal dose, and increasing it if unpleasant symptoms did not supervene, or stopping it when such did occur. Furthermore, though it does not precisely say so in the original, the eight patients were placed in charge of two capable medical internes to observe the effects, and they in turn had under them four hospital attendants. Under such precautions the treatment was carried on, with a result you do not mention—that one of the patients, before the advent of the treatment lapsing into chronic dementia, recovered her reason and has remained well ever since, and later, after the paper was in press, another apparently hopeless case also recovered and became a useful member of the community (see London *Lancet*, Oct., 1897). A complete restoration to sanity of twenty-five per cent of otherwise hopeless cases, which, but for the treatment instituted, would have progressed downward into an absolute mental darkness is, to say the least, a not unenviable record.

Now for the unfavorable side upon which you comment so strongly. You state that "of the eight victims, two became frenzied, one absolutely demented and degraded, and two died." Where you find your authority for the statement that two of the patients died is not apparent to the writer, as it is certainly not to be found in the original or in the pamphlet on "Human Vivisection." *None died as the result of the "experiment."* One woman did die many weeks after the thyroid had been discontinued, not as a result of its administration, but from galloping consumption, for which you will hardly hold the treatment responsible. Would you hold any physician accountable if he gave proper doses of strychnine to a patient, and he died of an intercurrent infectious disease two months after the treatment had been stopped? The cases are precisely parallel, the thyroid being eliminated from the body at the end of forty-eight hours.

Regarding the quantity of thyroid administered: Feeble white mice, weighing a few drams each, ate from fifteen to twenty-five grains of the thyroid a day for a period of from twelve to eighteen days before lethal effects resulted. Do you suppose that the small doses of ten and fifteen grains *per diem* to persons weighing from one hundred to one hundred and twenty-five pounds could have serious consequences? The effect of any drug upon the system is in exact ratio to the bodily weight, minimal doses producing a minor, maximum ones a greater effect.

Next, according to your account, as a result of the treatment, one patient became "absolutely demented and degraded." The thyroid can hardly be accused of doing this deed, as it was to prevent just such an

issue in all the cases that its administration was resorted to. Further comment is unnecessary, other than to mention that it is the nature of all chronic forms of lunacy to dement and become degraded.

Lastly, according to your charges, two patients "became frenzied." This is your only possible debatable ground. By frenzied we medically speak of persons who become strongly excited, but with whom the condition is transient. Your criticism on this point may be as you choose to make it, but in this instance both of the patients who "became frenzied" had been so before without the administration of any drugs, and it did not seem to hurt them particularly. Is it not better that two persons should be rendered temporarily cross and excitable than that the whole eight should be allowed, without any attempt to rescue them, to lapse into the depths of an oblivion where the "light is as darkness?"

The purpose for which the article was written was to show to the medical profession that *a certain medicament in common use* was not free from objection, and should not be given in unsuitable cases. In proper ones the results are among the most resplendent attained by modern medicine, converting the drooling dwarf into an intelligent, well-grown man or woman; or in other instances, as in myxœdematous insanity, affording the otherwise hopelessly insane with almost a specific to recover their reason.

It is most deeply to be deplored that articles that are only intended for the guidance of the medical reader should be, in any way or manner, placed before a public who cannot possibly understand from every point of view the necessity and aims of scientific investigations, whose judgment in such matters must be necessarily prejudiced by their own feelings, and who do not comprehend that such work is not for the benefit of a single individual, but for the good of the whole race.

I am, very truly,

BALTIMORE, October 30, 1900.

HENRY J. BERKLEY.

No better commentary could be given upon the unfair character of the anti-vivisection campaign which is being waged by sentimental people in various parts of the country.

ANNUAL MEETING OF THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION, MILWAUKEE.—The next annual meeting of the American Medico-Psychological Association will be held in Milwaukee, Wis., June 11, 12, 13 and 14, 1901. The date has been placed a little later than usual that this deservedly popular convention city may be visited at a pleasant season.

Hotel Pfister, selected for the meeting of the Association, has ample accommodation for all members, and offers special rates. Its rooms are airy, spacious, and well furnished; it has an excel-

lent auditorium, a pleasant restaurant, and a large banqueting hall.

A full attendance at the meeting, which promises to be one of unusual interest, is earnestly desired.

Those members expecting to read papers are kindly requested to send titles thereof to the Secretary as early as possible.

It is announced with much satisfaction that Dr. Warren P. Lombard, Professor of Physiology in the University of Michigan, will deliver the annual address. His title will be the Reenforcement and Inhibition of Nervous Processes.

PSYCHIATRY AT THE SHEPPARD AND ENOCH PRATT HOSPITAL.—No better commentary can be made upon the excellent paper of Prof. Barker of the University of Chicago, which is printed in the January number of the JOURNAL, than the following extracts from the annual report of Dr. Brush which has just come to hand. He says:

It has been frequently said that psychiatry has not kept pace with the advances in other departments of medicine. If the care of the insane is to be looked upon from the merely material standpoint of housing, clothing, feeding and nursing this charge falls to the ground. In hospital construction and management, in methods of care and nursing, as much has been accomplished in the way of improvement as in any department of medical work. Much, indeed, of value in general hospital management and methods has been learned by experience in hospitals for the insane.

If, however, we are asked, Has psychiatry kept pace with the scientific advances which have been made in general medicine and surgery? we are reluctantly obliged to answer, No.

The methods of some of our critics, the injustice of some, nay, of many of their strictures, and the profound ignorance of what had been accomplished, and of the hopes and aspirations of those who were quietly doing painstaking and honest work, shown by others, has by the natural irritation and resentment caused, prevented us sometimes from appreciating the real kindness and genuine truth of much which has been said of the state of psychiatric science.

The difficulties which lie in the way, as compared with those which beset the investigator in a general hospital are great, and are not always appreciated by those who demand results, and yet these difficulties are often more apparent than real. Their seeming insurmountability often depends upon an ignorance of the methods of attack rather than upon the character of the obstacle.

In this country the large majority of the insane in institutions are

under State, county or municipal care. The management of the institutions in which they are confined is frequently in the hands of men, appointed by public officials, who in turn make the medical appointments. Too often, unfortunately, it happens that these appointments are for a limited term which is dependent upon the period in office of the party in power. In consequence of this unfortunate state of affairs it has often happened that when men of real scientific ability and enthusiasm have been placed in charge of public hospitals, the incentive to work has been deadened by the uncertainty of official tenure, or where work has been attempted outside the routine of hospital management and the general detail of ward visits, it has been rudely interrupted by a change in official and medical management.

The opprobrium of this unfortunate state of affairs has been unjustly placed many times upon American alienists, when really it lies with the people who permit themselves to be ruled, and all branches of their public administration to be debauched by men who openly boast that they are in politics for the benefit of their pockets.

The example set by States and communities which permit their hospitals to be controlled by political parties and their medical positions used as part of the spoils of political campaigns has had a far-reaching influence in discouraging ambitious men from entering hospital work, even in localities where continuance in service during satisfactory work is assured.

It cannot be denied also that there is something in the routine of hospital work, which, unless an active and stimulating spirit of study and research is ever at work among the staff, tends to deaden ambition and to produce men who are satisfied with the mere perfunctory performance of medical duties without interest in that searching analysis and study of cases without which true progress is impossible.

The functions of a hospital are twofold. To shelter, care for and, if possible, relieve or promote the recovery of the sick, is but one. The other is bound up in the first, is essential to its performance in its broadest and most complete sense, and is therefore the function which is of paramount importance. This second and most important function is to study disease, its causes, progress, processes, termination and prevention.

It is sometimes alleged of hospitals that they are places where the patients are used for the benefit of the doctors, where they are studied and investigated, to the neglect of the important matter of treatment. Nothing could be farther from the truth. The hospital whose medical staff is most awake to modern methods of study, where the eager searching, restless spirit of inquiry which is unable to take anything upon hearsay, is most prevalent, is the hospital where disease is most quickly and intelligently recognized and where the remedy is most aptly applied.

In psychiatry we have too long been contented with permitting our hospitals to fulfill but a portion of their true function. We have carefully considered the question of hospital architecture, construction and

government, and have given the insane committed to our care such treatment as experience taught was for their best interests. This treatment has been, however, largely empirical and has had little or no basis in a scientific conception of what insanity really means. In a few isolated instances attempts have been made to establish laboratories for scientific investigation, but the studies made in these have contributed but little to the elucidation of the many important problems which confront us. The reason for this is obvious to those who critically examine the question. The main effort in these laboratories has been expended either in the investigation of pathological conditions found after death, or in one or two instances in an attempt to support a theory concerning the etiology of many forms of insanity, and establish a method of treatment.

The failure which has resulted has been because of the lack of connection between laboratory investigation, and painstaking clinical studies and resulting clinical records.

In one State noted for the high standard of care established in its hospitals for the insane the serious mistake was made in its admirably equipped laboratory of attempting scientific studies relating to insanity without any relationship between these studies and the clinical observations made in the wards of the hospitals.

The assertion has been made that few hospital assistants are capable of accurate clinical observation, and that the Medical Superintendents cannot give the time necessary and that they should moreover be considered more as directors of the medical work, and consultants to whom the assistants might apply when in doubt.

If this is true, and in many instances it probably is, half the time spent in section cutting, or in evolving theories of psychical or psycho-physiological activities would soon train a staff of competent clinical observers.

The problems which confront the student of psychiatry are manifold and relate to every form of human activity, to all of the problems of human life, and to all matters relating to man's environment.

Of all conditions which affect the interests of mankind, none so thoroughly incapacitates its victim as insanity. Special means of care, special nursing, and in the majority of instances removal from home are necessary. These involve the enactment of the laws regulating the confinement of the insane, and governing the establishments specially intended for their care. Not only must these laws be enforced, but annually there must be included in the tax budget a by no means insignificant sum for the maintenance of public institutions for the insane and the care of the inmates of these institutions.

Intricate problems incident to the plea of insanity either as a defense or a bar to trial are constantly being considered in our law courts, and in addition to this, in every case of the disposition of property by will, deed of trust or other form of conveyance, the question is always pertinent, though happily not always raised, Is or was the person conveying this property able to make a valid deed or contract or of sound and disposing mind and memory?

Not only is the whole community in its laws and law courts, and through the burdens of public taxation affected by questions involved in the study of insanity, its care and treatment, but in a more direct way the integral parts of the body politic, the families are as thoroughly interested and influenced by the same questions. Matters of environment, occupation, education, marriage, and, indeed, all of the intricate details of family life have a very close relation to the important subject of mental soundness and capacity. It is manifest if the foregoing assertions are true, that those who are engaged in the care of the insane, and who have, in consequence, more favorable opportunities for studying the problems involved, have a twofold responsibility. They are not only bound to promote as far as possible the comfort and recovery of those under care, but are also to use the opportunities at hand to aid in solving the many unsolved problems relating to the cause, prevention and treatment of insanity.

We are now entering upon the closing year of the first decade of the real history of the Hospital. It will not, I think, be deemed egotistical if it is asserted that thus far we have accomplished something in the mission Moses Sheppard intended. We have stood for an improved standard of care of the insane, and the voice and example of this Hospital have not been without influence in awakening public interest to the needs of this unfortunate class in this State. Much remains to be done in this direction, and the efforts already put forth will not cease until Maryland recognizes her duty to her wards and takes her place alongside those other States which have adopted an enlightened public policy in the care of the insane.

Now, however, in addition to what has been attempted, new duties and responsibilities confront us.

In the Sixth Report to the Trustees I said: "Within the broader scope of the Hospital there must be embraced means of study and investigation of everything which enters not only into the treatment of insanity, but its causes and prevention.

"Here clinical and pathological studies can be pursued under the best advantages, and here may be obtained by those so inclined, a knowledge of the clinical manifestations, and of the care and treatment of insanity, as in general hospitals general diseases are studied."

Again in the Seventh Report I said: "The study of psychiatry, that branch of medical science which deals with the disorders of the human intellect, involves not only an acquaintance with what is known in all other departments of medicine, but leads one into a study of almost every interest and activity of human life. An institution of this character requires, therefore, in addition to apparatus for scientific observation and research and all the various appliances for therapeutical use, a well-stocked library, supplied not only with the best works upon medical and the allied sciences, but with the leading medical periodicals of the world.

The use of the material at our disposal, with the means you will in

time be able to devote to the purposes of this institution, will require, in addition to the regular medical staff, a corps of trained clinical assistants or internes. Applications have been made to me from time to time since the opening of the institution for positions of this kind, and I am confident that a number of graduates in medicine would gladly avail themselves of opportunities for post-graduate work here, and that from these, men could be easily selected properly trained for clinical work and laboratory study. Such an arrangement is already in successful operation in several institutions of this character, and is the common practice, as you are aware, in general hospitals. In this manner we could add greatly to the value of the medical work here, and at the same time could periodically send into the community physicians trained in the knowledge of insanity and its treatment, as our sister hospitals send them trained in a practical knowledge of medicine and surgery. The value of the Hospital would then be immeasurably increased and the desire of its Founder and the expectation of the profession and the community, that it contribute to the advancement of the treatment of insanity, most thoroughly met."

At the close of the Eighth Report I was able to announce that Dr. Stewart Paton, a well-trained neurologist and neuro-pathologist, had been at my request added to the staff of the Hospital with the title and duties of "director of the laboratory." Since then the Trustees have authorized the appointment of a clinical assistant, and Dr. Clarence B. Farrar, a graduate of the Johns Hopkins Medical School, has been appointed to that position, entering upon his duties on October 1. The Trustees also made an appropriation of a specific sum to be used during the year for books, periodicals and apparatus.

These appointments and appropriation, gentlemen of the Board of Trustees, are but the entering wedge I trust. If the second and most important function of the Hospital to which I have alluded is to be undertaken here,—and we shall fall far short of our plain duty if it is not, if we do not establish here a systematic course of investigation into all that relates to the cause, prevention and treatment of insanity,—you must authorize larger expenditures for books, apparatus and material for laboratory and clinical work, and you must permit the appointment of additional clinical and laboratory workers. Not only this, but you must permit and encourage the conduct of the work here along the lines which will attract students in special fields of medico-psychological investigation to enter the Hospital and engage in research work along the lines of their special studies. In time there will be accumulated here a working laboratory and reference library which will attract students and a mass of observed facts recorded by trained men, which cannot but be of value in aiding the progress of scientific psychiatry, which cannot fail to be of value to suffering men and women. In our own work it will tend to individualize the patients and will greatly facilitate their care and treatment.

Such a development of the Hospital is along natural lines, and is what

the medical profession is anxiously hoping will result. Numerous members of the profession both in our own work and in general practice stand ready to encourage every effort which shall be made to more clearly comprehend the nature and causes of insanity. While writing this report I am in receipt of a letter from the Medical Superintendent of one of the best known hospitals for the insane in the country, a man who has given years to the study of insanity and has contributed a by no means insignificant amount to the literature of the subject. He says: "I hope you and others who are engaged in practice in our hospitals will not forget that there is something to be learned yet in the clinical study of cases. . . . I would be very glad that some effort shall be made to promote the study of the insane. . . . The study of pathology should never hold the foremost place, and we must not forget that the insane are still to be cared for and treated medically."

Such a development will involve much work and thought on the part of your Medical Superintendent and his assistants, but, in the words of Clouston, "If we could succeed in placing the treatment of insanity . . . on a sure basis of carefully observed fact and irrefutable generalization this would be a noble reward for much hard work and self-denying drudgery."

WILLIAM P. LETCHWORTH ON CLASSIFICATION OF THE INSANE.—The presidential address of Hon. W. P. Letchworth of Buffalo at the New York State Conference of Charities and Correction in Albany in November last contains an excellent plea for the better classification of the insane. After showing that the average annual increase of the insane each year is about seven hundred patients, he inquires why it may not be possible to apply to the insane the principle of classification by providing small hospitals for the acute insane near the larger cities instead of adding to institutions already overburdened with patients. In these small hospitals, which might be called sanatoria to avoid any popular stigma attaching to commitment to an institution for the insane, there could be much greater individualization of the patient than in the larger institution, and, in consequence, a higher percentage of cures. Voluntary admissions also might be permitted in order to encourage the prompt treatment of acute cases. If the estimate of the Lunacy Commission is correct, that every uncured case of insanity ultimately costs the State \$6000, we are, in his opinion, warranted in exhausting every reasonable resource in treating the acute insane and in dealing with insanity in its earlier and premonitory stages.

He further suggests the establishment of State district colonies and the transfer to them of such patients as are adapted to the conditions of colony life. The colonies should have ample land and the patients should be sheltered in cottages accommodating from twenty to thirty patients, and the aggregate number of patients should not be less than 300 or more than 500. Then the able-bodied insane could have healthful employment, a more natural life and greater freedom. The expense of maintenance would also be less than in a more pretentious institution.

It is interesting to note that these are upon the same lines as the more detailed recommendations contained in his book, entitled "The Insane in Foreign Countries," issued in 1889. Then they seemed difficult of attainment and well-nigh impossible. Now they are being seriously considered in many sections of the country and are regarded as wholly feasible.

THE CRAIG COLONY FOR EPILEPTICS.—The new classification of salaries to take effect January 1, 1901, made by the President of the State Board of Charities and the State Comptroller, and approved by Governor Roosevelt, will provide for some changes, quite radical in nature, in the medical staff, nurses and other employees at the Craig Colony for Epileptics. The pay of the medical staff has been fixed as follows: Superintendent, \$4000 a year; 1st Assistant Physician, \$1800 to \$2000; 2d Assistant Physician, \$1200 to \$1500; 3d Assistant Physician, \$1000 to \$1200; Woman Physician, \$1500; one Medical Interne at \$600 to every 250 patients.

The Colony has at this time 720 patients. This gives the Colony six physicians, exclusive of the Medical Superintendent, *i. e.*, four physicians, regularly graded, and two medical internes. When the number of patients increases from 720 to 750, an additional medical interne will be added, making seven physicians to 750 patients. It is the wish of the Superintendent of the Colony to keep the ratio of physicians at one to 100 patients, or as near that as possible.

A resident pathologist, at \$2500 a year, is also provided for. A pathological laboratory has been constructed, is equipped, and work in it will be commenced at an early date. Two resident chaplains are also provided for, at \$600 a year. They will live

on the premises, and both, in time, will have separate cottages. They will, in addition to their salaries, receive maintenance.

All nurses receive \$25 a month and maintenance. Attendants, those who have not yet passed through the Craig Colony Training School for Nurses, will receive from \$16 to \$24 a month. Teachers are allowed from \$30 to \$50 per month. Five teachers probably will be secured at once; two males and two females, and one male principal, who will look after the work of all the rest. The Superintendent of the Colony has long felt the necessity for giving the young epileptics, of whom there are now about 100 at the Colony, better educational facilities; but he was compelled to await the final decision in the matter of this classification. The ratio of nurses to patients is about one to twelve, which has been found to be ample.

The majority of the medical officers, *i. e.*, the Medical Superintendent, the First Assistant Physician, the Second Assistant Physician and the Woman Physician, will each have quarters separate and distinct from all the rest, as well as a separate dining-room. This will be appreciated by physicians who have served for any length of time in the great hospitals for the insane.

EXPERT TESTIMONY.—It is the common practice, not only of members of the bar, but of judges on the bench, to throw discredit upon expert testimony, and juries have time out of mind been told that no attention need be paid the opinions of experts; that the practical application of the juror's common sense will be of greater value. Between the "common sense" of the average juror and the opinions of many so-called experts, justice in accordance with the tradition must in many cases go blindly.

The courts and members of the bar are, in our opinion, in many instances wholly responsible for the poor opinion of expert testimony which is held in the legal mind.

In an address before the Maryland Bar Association some months ago, its president, the Hon. John P. Poe, referring to members of his own profession said: "We shall teach them that it is not according to the true rule of professional ethics to keep in their service surgeons and doctors who have lost what little practice they may once have had and to reward the glib tongue of these venal experts by giving them a percentage of the

damages which their facile testimony, purchased in this way, is largely instrumental in recovering."

From the above it appears that some members of the bar keep in their service professional experts whose opinion is purchasable. Surely the courts have a knowledge of this and must be aware, because of the frequent appearance of the same witnesses called by the same attorneys, who these venal "experts" (?) are, and there must be in the hands of the judges some means of exposing not only their true character but that of their employers.

Not only does this class of professional witnesses lower the opinion held of all testimony given by witnesses called as experts, but the employment of witnesses who claim to be expert, but who do not possess more than a rudimentary knowledge of the subject upon which they testify tends also to bring expert opinions into disrepute.

Witnesses have been heard to declare gravely that paresis and paranoia were similar conditions, the one a little more serious, however, in its prognosis than the other, and that cephalalgia and paranoia were alike except that the one was induced by "habits of life," while the other was commonly an "inherited condition."

Attorneys frequently lower the repute of expert testimony by insisting upon placing a one-sided view of the case before witnesses summoned by them, thus placing the witness, when the whole case is revealed, in the position of apparently giving prejudiced testimony. The writer recently saw a hypothetical question purporting to represent the facts which had been proven concerning the conduct and conversation of a deceased testator. Upon the facts set forth in the question there could be no question of the mental state of the person represented therein; indeed, it would appear impossible for him to have performed any reasonable or responsible act. The attorneys for the opposite side, however, had prepared a hypothetical question containing the essential facts as they saw them which could only be answered by testifying that the testator was at his death in possession of sound mind and memory.

In the face of such a situation a jury could pay but little attention or give but little credence to the testimony of the experts on either side.

Had the attorneys for both sides been required to submit the

whole case to experts selected by the court, without relations to, or expectations from, either side, it is quite probable that an opinion would have been elicited which might have received respectful consideration. Such an arrangement does not seem difficult, and would go far toward removing the opprobrium which now attaches to expert testimony.

We recall one case at least in which the court, dissatisfied with the conflicting opinions of the experts called in a suit for malpractice, issued subpœnas for three surgeons, and when they appeared in court directed them to examine the plaintiff in the suit and report their findings. The testimony of these witnesses decided the case.

In the instance just narrated the gentlemen summoned to aid the court were not only wholly unbiased because not appearing at the solicitation of either side, but they were known to court and jury as eminent in their profession.

In a case which attracted some attention in Washington a few years ago the court selected three well-known experts to aid the court in reaching an opinion. The counsel for the prisoner was at the same time directed to summon three experts to examine him, and when they appeared in court their examination was largely conducted by the experts called to assist the court, who finally made a report which was adopted as the court's opinion. There certainly appears to be a crying necessity for some reform in this direction, and the various measures to bring this about which have been proposed show that this necessity is recognized.

THE NURSING OF MENTAL DISEASES BY NURSES TRAINED IN GENERAL HOSPITALS.—Much of the newspaper condemnation of the treatment of the insane in public institutions which has resulted from an exposure of the methods pursued at the pavilion for the insane connected with Bellevue Hospital in New York City is wide of the mark. Bellevue Hospital is a general hospital and not designed as a hospital for the insane in any respect. The pavilion is simply a detention ward for the custody of insane persons or alcoholics picked up in the streets of New York until such time as they can be transferred to well-organized institutions for the care of the insane, or, if alcoholics, until they are in a condition to be set at liberty. The pavilions have no

special organization for the efficient care of the insane and no responsible head to see that the rules and regulations which have been established for their conduct are carried out. Male nurses destitute of special experience in the care of the insane, and coming to the discharge of their duties without previous discipline in wards for the insane and disqualified by a certain feeling of being superior to the work which seems inseparable from the nurse who has received training in a general hospital have been guilty of acts of violence towards their helpless patients. The evil is a serious one, and we have no desire to excuse or minimize it. That it exists should not be any argument against the treatment of the insane by competent, skilled persons in public institutions under proper supervision. The present abuse is the legitimate result of the vicious state of affairs in the pavilion, where unskilled nurses without adequate instruction and proper supervision have been assigned to the care of a most difficult and trying class of patients.

The remedy is to place the pavilions for the insane under a competent and experienced head, who is to be responsible for the proper treatment of his patients and to give him nurses who have been adequately instructed in the care of the insane and who have had sufficient practical experience in the work to undertake it without fear. Every year of added experience demonstrates the unfortunate fact that the nurse trained alone in a general hospital is wholly unfit to assume charge of the insane. It is the duty of the State or of the municipality in every instance to furnish to detention hospitals physicians and nurses skilled in the treatment of the insane and experienced in the work. It is also a corresponding duty of those who conduct training schools for nurses in hospitals for the insane to be certain that their graduates are fully trained for this work by a proper discipline of the heart as well as of the hands and head. The calling of a mental nurse should be a vocation rather than a mere avocation, and the training of the individual should not be technical and special, but of such a character as to call into activity the higher qualities. Until the training school connected with a general hospital can do this, let us hear no more of the superiority of the hospital trained nurse.

Obituary

CHARLES CARROLL EASTMAN, M. D.

Dr. Charles Carroll Eastman, first assistant physician at the Binghamton State Hospital, Binghamton, N. Y., died April 12, 1900, at the age of fifty-nine years. His death was the result of chronic Bright's disease complicated with cardiac insufficiency. Although for several years prior to his death Dr. Eastman had not been in robust health, he was able to perform his duties at the hospital until March 12, 1900, when he relinquished all work and did not again leave the cottage where he resided with his wife, until the end of his life.

Dr. Eastman was born in the village of Owego, N. Y., February 3, 1841, and was educated in the public schools of that village and at Hobart College in Geneva, N. Y. He was the second son of Dr. Hiram Newton Eastman, and one of nine children, five of whom—three brothers and two sisters—survive him. His father was for many years Professor of Materia Medica in the old Geneva Medical College at Geneva, N. Y., where the son obtained his medical education and was graduated in 1866. His mother, Mary Guyon Curtis, came of a Quaker family, but both of his parents were active workers in the Episcopal Church, of which the son was also a member.

For a short period after obtaining his medical degree, Dr. Eastman engaged in teaching and as Principal of the Academy in East Bloomfield, N. Y., he prepared many students for college. His services were so highly valued in that community that he was urgently besought to continue his labors there, as a teacher, when he felt called upon to begin his life-work in the practice of medicine. It was while teaching in East Bloomfield that he met Miss Mary Gould Sears of that place, who became his wife October 9, 1867. To them one child was born in Athens, Pa., in 1869, a daughter, who lived but nine years. To fill the place made vacant by her death he took an adopted child into his

home, and lavished upon her an affection that could not have been exceeded had she been of his own flesh and blood.

Dr. Eastman practiced medicine for several years in Athens, Pa., in partnership with Dr. Ezra P. Allen. He then removed to Geneva and afterward to Owego, in both of which places he was associated in practice with his father. In 1881 he was selected by the board of managers of the newly organized asylum for the chronic insane at Binghamton, N. Y., for the responsible post of first assistant physician, a position which he filled with conspicuous ability and fidelity, until his last illness compelled him to lay aside his professional work. During the nineteen years of his official connection with the institution, it grew from a small, crude asylum for a few chronic cases sent to it from the overflowing wards of the other asylums of the State, into a large, thoroughly equipped hospital, where nearly 1400 patients are cared for in all stages and forms of the disease. At every step of advancement made in the hospital development, Dr. Eastman's steadfast, loyal and strong support was of inestimable value to the managers and to the superintendent, while his unvarying kindness to the unfortunates to whom he was called upon to minister, was a never-failing source of comfort to them and to their friends. His interest and zeal for their welfare were unflagging; indeed, it can scarcely be doubted that had he been less mindful of the comforts and needs of others and more considerate of himself, the fatal malady, which arrested his course while he was yet in the prime of life, would have been postponed materially.

Notwithstanding the constant demands upon his time and energies in his special work of caring for the insane, Dr. Eastman found time to read the new books and the medical journals, to keep in touch with the important advances made in general medicine and to take an active interest in the numerous medical societies of which he was a member. Possessed of a genial personality, a lively appreciation of the humorous, and unswerving integrity, he made friends easily and rarely lost them through any fault of his. His patients regarded him with affection; and the employees of the hospital found in him a friend always considerate of their interests and anxious to help them. By his death the hospital lost a faithful officer and the State an honest, painstaking servant.

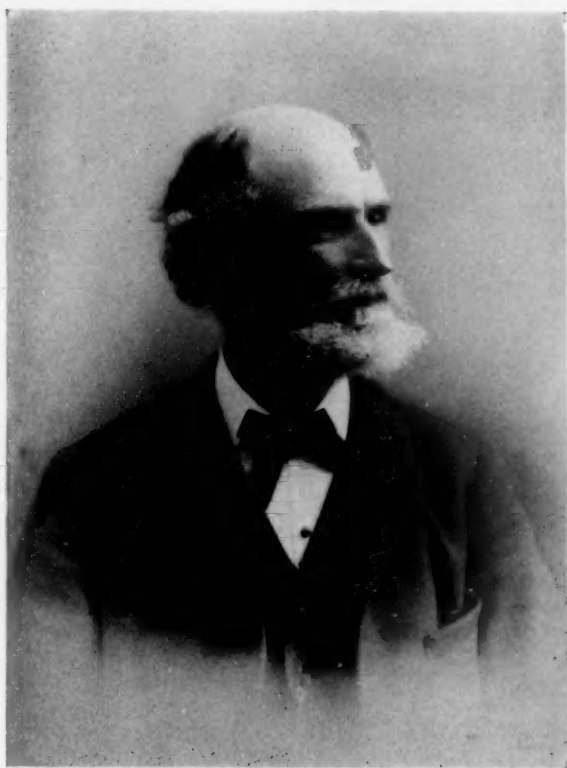
A BIOGRAPHICAL SKETCH OF THE LATE DR. JOHN
C. SHAW, PREPARED BY B. ONUF (ONUFROWICZ),
M. D.¹

Doctor John C. Shaw, whose name is so firmly linked with the introduction of non-restraint in the insane hospitals of the United States, died on January 23, 1900, at his home, 142 Clinton Street, Brooklyn, succumbing to a lobar pneumonia after a week's illness. His loss will be deeply felt by his family, by all those who were favored by his friendship and by the medical profession of Brooklyn at large, which so frequently availed itself of his valuable services as a consultant, and in other lines. Neurology loses in him an enthusiastic, fruitful worker, and psychiatry a warm advocate and promoter of non-restraint.

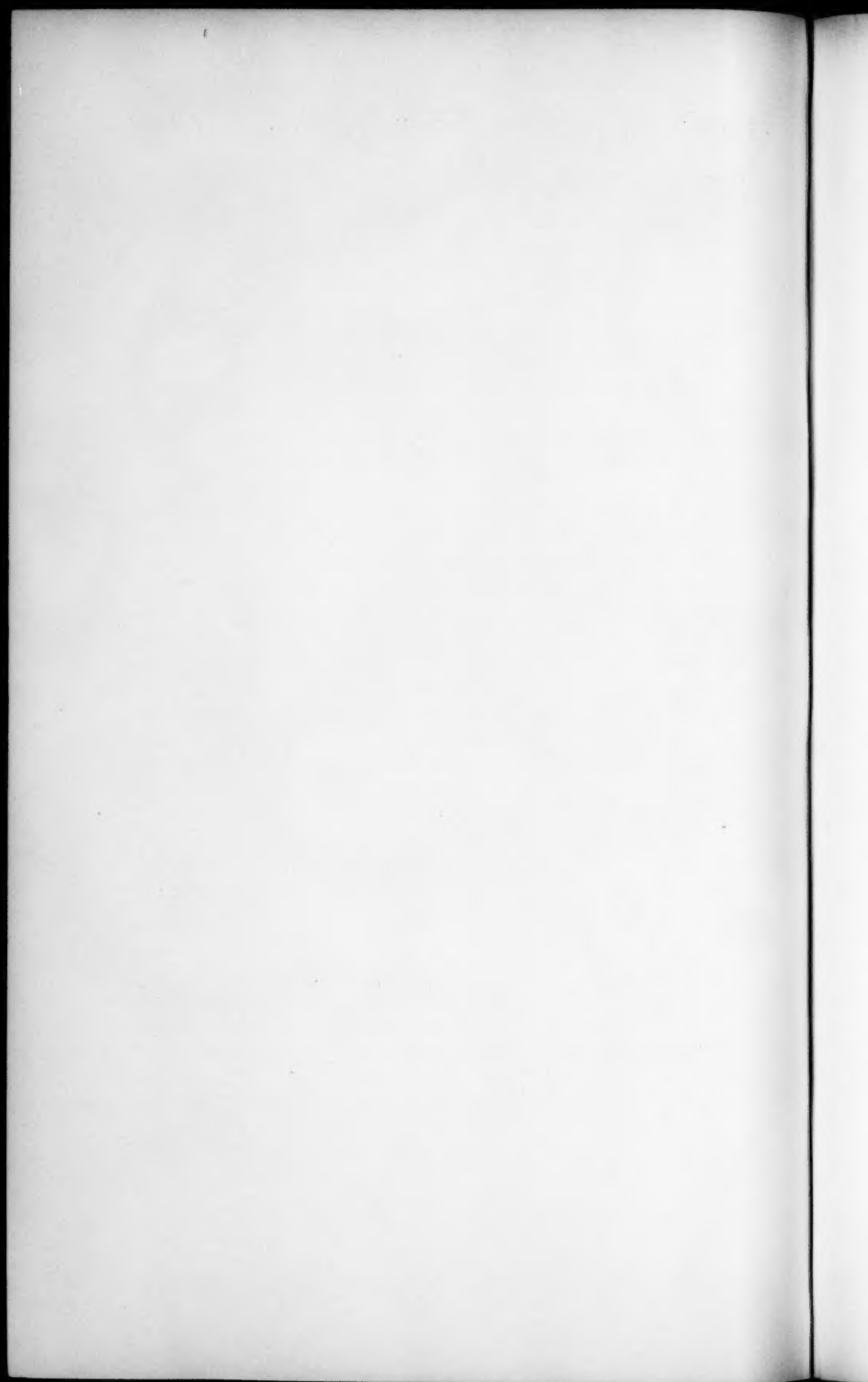
Dr. John Cargyll Shaw was born in Belmont, a place situated on St. Anne's Bay, Jamaica, West Indies, on September 25, 1845. His father, John Shaw, was an Englishman, his mother, nee Christine Drew, a daughter of Councillor Drew of Belmont. Born on the stockraising estate of his father, up to the age of seventeen he lived in the country, mostly in the mountains, doing a great deal of outdoor exercise, especially horse-back riding, of which he was very fond. The love of country life never left him, and in his later years he spent as much of his summers as his practice would permit at his idyllic country home, in the hills of South Woodstock, Conn.

Doctor Shaw received his first education from his mother, a cultured lady, and later, from his 12th to his 16th year, attended a boarding school at Walton, Jamaica. At the age of seventeen he came to New York and found employment in the wholesale drug house of White & Co., on Pine Street. He utilized his spare time in taking a course of lectures on chemistry by Professor Chandler, and it was then that the idea of studying medicine

¹ As member of a committee appointed for that purpose by the Brooklyn Society of Neurology. The other members of the committee were Drs. J. C. Cardwell (chairman) and L. J. Morton. The writer is indebted to Dr. Wm. Browning for very material assistance in the compilation of Dr. Shaw's writings and for valuable biographical data.



DR. JOHN C. SHAW.



ripened in his mind. During the winters of 1873 and 1874 he studied at the College of Physicians and Surgeons, from which he graduated in 1874. Soon after he began practice in Brooklyn.

While still an undergraduate he had served as house physician at the Brooklyn Eye and Ear Hospital, with which institution he later became permanently connected in the capacity of neurologist, a special neurological department being established for him.

In 1875 he became assistant physician at St. Peter's Hospital, and during his stay there treated a case of cervical myelitis, which he interpreted so ingeniously as to thereby arouse the attention of Doctor Seguin, under whose care the patient afterwards came. This formed the starting point of Shaw's neurological career and of a close relation with Seguin, and later also with Satterthwaite and Ott, in whose private laboratories he studied and investigated. His association with Doctor Seguin was especially intimate, and it may well be said that he was a prominent representative of the Seguin school. He was for a time Seguin's clinical assistant at the College of Physicians and Surgeons.

In 1878 Shaw became medical superintendent of what is now called the Long Island State Hospital—a position which he held until February 1, 1887. He utilized his influence so effectively as to entirely abolish restraint in the management of the patients under his care. He furthermore advocated, and successfully applied, systematic occupation and outdoor exercise as a means of treatment of the insane. The manner in which he proceeded to fulfill his ends is well illustrated in the following two passages of his paper, "The Practicability and Value of Non-restraint in Treating the Insane," read at Cleveland, Ohio, July 1, 1880, before the Conference of Charities:

"On taking charge of the asylum, not two years ago, I found a large number of patients in restraint-jackets, straps and seclusion. On inquiring why certain male patients were in restraint, I was told by the attendants and the assistant physician, who was then in charge of the wards, that they were bad, vicious patients, who would injure the nurses and other patients. Some of these patients had been in restraint for months and even for years. On considering the situation of things and the best way of reducing this very high ratio of restraint, I observed that the patients,

whenever they were in the presence of the attendants, showed by the expression of their faces evident dislike to them; and as the nurses stoutly insisted that these patients could not get along without restraint, I saw that if I took the apparatus off in these halls and with these nurses, I should certainly be unsuccessful, as there soon would be a collision between the patients and their nurses. I therefore removed the patients into other halls, with nurses comparatively strangers to them, and then took the apparatus off. This proved to be a complete success, and patients who had been in continued restraint, night and day, for months and even for years, now got along so quietly that I sometimes wondered why they had ever been put in restraint at all. The restraint on the female side was less than on the male side, and this was due to the greater intelligence of the assistant in charge. Here also we adopted the same plan, with like success. Simultaneously all the restraint apparatus was taken from the halls where previously it had been kept (for the nurses to apply at their discretion), to the office, so that it could only be applied by direction of the medical staff; the restraint to be for such a length of time as they directed, and then returned to the office and a record kept of it. In this way we reduced the restraint to about five patients in 700. This proved to be so successful and satisfactory to all the staff, as well as to myself, that I determined to have no restraint-apparatus at all, for then none could be used. So I had it all burnt, and I do not exaggerate when I say that there must have been three hundred pairs of restraint-apparatus, straps, camisoles, etc."

"Closely connected with this matter of non-restraint is the employment of patients; these two go together. The employment of patients means the abolition of restraint-apparatus; the plan of keeping patients day after day and month after month in a hall is, in my judgment and observation, highly detrimental to their mental health; even the demented become more stupid under these circumstances. With the limited ground and facilities at my command, I have been able to do comparatively little in my asylum, but I hope and believe it will compare well in this with other asylums having ampler facilities and grounds. I succeeded in having placed at my disposal about sixteen acres of garden. On this we have occupied many of our male patients, whilst

others made roads, etc. The non-restraint and occupation of patients are, in our experience, most efficient means of treatment. Patients who appeared almost hopelessly insane recovered while out of doors working; others recovered much faster than they otherwise would have done."

In 1883 Doctor Shaw became lecturer on Diseases of the Nervous System at Long Island College, and in the following spring term, lecturer on the Anatomy and Physiology of the Nervous System at the same institution, succeeding in these positions Doctor Landon Carter Gray. In 1886 he received the title of Clinical Professor of Diseases of the Nervous System at the college mentioned. His lectureship on the Anatomy and Physiology of the Nervous System, which subsequently became a professorship, in 1886-87, he turned over to Doctor Wm. Browning.

Doctor Shaw's great merit as a teacher was the promotion of clinical methods in preference to didactic teaching. He remained in close touch with general medicine, thus avoiding the narrowness and one-sidedness into which the specialist is so apt to fall.

The following other positions were held by him during his distinguished career: He was Neurologist to the Brooklyn Eye and Ear Hospital, Consulting Neurologist to St. Catherine's Hospital, to St. John's Hospital, to the Brooklyn Hospital, to the Kings County Hospital, to Long Island College Hospital, and, with Doctor Seguin, to the Hudson River State Hospital. He was the founder of the Neurological Department of the Brooklyn Central Dispensary, this being the first Neurological Clinic established in Brooklyn. He was president of the New York Neurological Society (twice); also of the Brooklyn Neurological Society and of the Kings County Medical Society; he was among the first members of the American Neurological Association. When this society was organized in 1874, pursuant to a letter of invitation addressed to the physicians interested in neurological science, asking them to form that association, Doctor Shaw was among those who responded to the call, and his name appears on the list of thirty-six members published with the first Transactions of the Society in 1875. He was also for a time associate editor of the American Medical Digest.

His literary activity was quite extensive. The periodicals to

which he chiefly contributed were the International Clinics, the Journal of Nervous and Mental Disease, the Archives of Medicine and the Brooklyn Medical Journal.

The papers published in the International Clinics were clinical lectures delivered at Long Island College, and comprised studies upon the following subjects: Mysophobia, paranoia, hysterical trembling, stammering and mutism, hemiplegia in children, the muscular atrophies and contractures in locomotor ataxia. These lectures are written in a vivid and clear manner, giving a concise clinical picture of the conditions described.

For the use of students and practitioners, he wrote a brief compendium entitled "Essentials of Nervous Diseases and Insanity," which reached its third edition in 1898. This book, all the illustrations for which were made by Mrs. J. C. Shaw, very aptly answers its purpose of introducing the advanced student into the domain of neurology and psychology.

Doctor Shaw's views on non-restraint are embodied in three articles, one of which has been mentioned already, while the others were published in the Archives of Medicine.

Among other publications in the field of psychiatry, we would mention a paper on perverted sexual instinct and one on arthropathies in general paralysis of the insane. The latter more strictly belongs to the domain of neurology and is of great interest, describing, as it does, trophic articular and osseous changes in general paretics quite analogous to those of tabetics, and to which no allusion had been previously made in the literature—at least Doctor Shaw could not find any reported.

A very valuable neurological contribution is the one on ophthalmoplegic migraine, or "Migraine with Intermittent Ptosis," the first original treatise on this disease issued in the United States, and containing the report of one personal observation.

Another article deserving special notice was written in conjunction with Drs. Seguin and Van Derveer—"A Contribution to the Pathological Anatomy of Disseminated Cerebro-spinal Sclerosis." It contains a fine description of the pathological process underlying disseminated sclerosis and at the same time the first autopsy report of the disease published in this country.

A subject to which Doctor Shaw gave particular study was locomotor ataxia. He dilated on this disease in a number of

articles, reviewing it in its different clinical aspects, as well as in its pathological anatomy. In the latter connection should be mentioned his paper on "Degeneration of the Peripheral Nerves in Locomotor Ataxy," based upon the report of a case in which the peripheral nerves showed very marked degenerative changes. This report, Dr. Shaw thought, was also the first of the kind published in this country.

Among his other neurological contributions the following are of special interest:

His paper on Menière's Disease, read before the Kings County Medical Society, contains an excellent clinical exposition of the disorder, with a demonstration of a well-marked case.

His experimental and clinical researches on the physiological action of hyoscyamin, embodied in two articles on that subject.

A paper on "The Eruptive Fevers in their Relation to Cerebral Tumor and other Diseases of the Nervous System."

"Traumatic Cerebral Pachymeningitis," describing a special form of this disorder, which, among other things, is characterized by the development of atrophy of the optic nerves.

In the field of neuropathology and neurohistology the following two observations may be mentioned: The first occurs in a paper on "Subacute Myelitis of the Anterior Horns, with Limited Sclerosis of the Lateral and Posterior Columns," and reads thus:

"The very slight degeneration of the fibres of the posterior root zones shows that it must have existed but a short time; in fact, the changes were so slight that, had I not carefully examined the hardened pieces with the naked eye and the magnifying hand-glass, it certainly might have passed unobserved in the mounted sections. I have learned to examine very carefully the specimens hardened in bichromate with a magnifying glass of about six to twelve diameters, as in this way very slight changes in the color, and which indicate disease, can be detected, and which are not so readily seen after fine sections are made, stained and mounted. The lesion in the posterior columns raises the question: Which of these two lesions was the primary one, or were they simultaneous? This is very difficult to answer."

The observation quoted is very noteworthy, showing, as it does, the keen observation of the writer. It is further of interest

in connection with the fact that the method of examination described in the quoted passage, and published as early as 1880, has been recommended quite recently, although with some modification, by Schaffer, who apparently was not aware of Doctor Shaw's publication, as he omits any mention of it.

The second observation relates to a peculiar fissuration of the myeline observed after treatment with osmic acid and known to us commonly as Lantermann's cones. Doctor Shaw concluded that these fissures were artefacts due to contraction of the myeline from coagulation. This observation is recorded in a short communication bearing the title: "Some peculiarities in the myeline of peripheral nerves after treatment by osmic acid," which appeared in 1878. Doctor Shaw apparently knew nothing of Lantermann's publication, which had appeared four years previously, as he does not quote it in his paper.

The collection of microscopical specimens left by Shaw comprises about 900 slides. When it is remembered that very many of the sections were made with a primitive instrument, the old Rannier microtome, on which they were cut free-hand with a razor, we must admire the skill of his hand.

The personal qualities of Doctor Shaw which endeared him to his friends, were his great frankness, amiability, modesty and trustworthiness. He was of a quick, sensitive nature, keen of perception. A very prominent feature was the firmness and honesty with which he stood to his convictions. This was especially apparent when he took his stand in court, where he always gave his true opinion and never hesitated to openly avow a change of view, when the circumstances of a case had forced such a change upon him. He thus contributed greatly to raise the standard of expert testimony.

Doctor Shaw left a widow and four children. Of the three sons, one has died since from a phlebitis and thrombosis of the lateral sinus. His family relations had been of the most happy. He was a most affectionate and devoted husband and father, spending a great part of his income on his children's education and leaving but a small sum to the survivors, in spite of his toil and of the reputation he had won.

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Correspondence

INSANE HOSPITAL RESULTS IN MASSACHUSETTS.

EDITOR AMERICAN JOURNAL OF INSANITY.

Sir:—The five State hospitals for the insane in Massachusetts, as distinguished from the five State *asylums*, have made report for the official year ended October 1, 1900, and their results, statistically viewed, are worthy of some attention. Named in order of date they are at Worcester, opened in 1833, Taunton (1854), Northampton (1858), Danvers (1878), and Westboro (1886). But in the 67 years of the Worcester hospital, it has been wholly rebuilt in a new location, two miles from its old buildings, which are used, since 1877, as a chronic asylum; while the Taunton and Northampton hospitals have been modified and much enlarged, and those at Danvers and Westboro also enlarged and much improved since 1890. Substantially, then, the five hospitals as they now stand, represent the ideas of the past five years in construction, so far as the restrictions of antiquated architecture will in some cases permit. Their average number of patients for the year was 4140; their land aggregates 2000 acres, or about half an acre to each inmate; their total valuation of real and personal property, October 1, was \$6,100,000, or not quite \$1500 for each inmate. Their total cost, however, was at least \$7,000,000, or \$1700 for each inmate. On the 1st of October last they contained an aggregate of 4264 insane persons, of whom not less than 3500 were chronic cases, or otherwise regarded as not likely to recover. The valuation, available surplus, and cash on hand at each hospital, October 1, were as follows:

Hospital Name.	Valuation.	Surplus.	Cash on Hand.	Average Weekly Cost.
Worcester,	\$2,490,766	\$55,813	\$18,205	\$3.37
Taunton,	594,926	21,604	1,767	3.63
Northampton,	650,005	10,270	23	3.37
Danvers,	1,713,750	42,393	13,576	3.51
Westboro,	613,642	13,365	5,442	3.76
Totals (approx.),	\$6,100,000	\$143,445	\$39,013 (av.),	\$3.40

The financial peculiarity of the Massachusetts State hospitals is that each is a separate corporation, deriving its revenue mainly from the price of board (which for four-fifths of the patients is fixed by law at \$3.25 a week), and allowed to accumulate such a surplus as it may acquire by economy. The considerable number of private patients, paying

higher rates than the State and city poor, enables each hospital to gain this surplus, which it can use at discretion. It is sometimes used for extraordinary expenses, but, in the aggregate, does not greatly vary from year to year; yet last year it was considerably reduced. It is the hospital's working-capital, and has led to economy rather than extravagance. The overcrowded state of most of the five hospitals is favorable to an increase of the surplus, when not used for buying land or adding to the buildings.

The number of patients increased in two years (from October 1, 1898, to the same date in 1900), from 3688 to 4264—576, or 288 a year; but the new admissions increased less. The following table shows some curious results:

ADMISSIONS, RECOVERIES AND DEATHS (1900).

Hospital Name.	First Admissions.	Other Admissions.	Recovered.	Died.	Discharged Unrecovered.
Worcester,	445	106	77	93	228
Taunton,	292	97	86	77	189
Northampton,	183	59	43	74	98
Danvers,	355	112	41	127	179
Westboro,	220	108	41	51	90
Totals,	1495	482	288	422	784

(Recoveries and deaths are all from first admissions.)

While the deaths and recoveries from *first admissions* were thus but 710, out of 1495 (persons, not cases), the persons discharged unrecovered were 784—showing an increase of chronic insanity, proceeding from these hospitals, of 74 over and above any diminution in the malady by recovery and death. This increase, upon 1495 as a basis, amounts to 5 per cent. At the same time the deaths are to the recoveries as 6 to 4, and the recoveries are but 19¼ per cent, or less than one-fifth of the most favorable cases treated. This mode of computation is seldom adopted, but, like all just calculations, it indicates how few are the recoveries, even on first admissions, and how rapid must be the accumulation of the chronic insane. Other States may show statistics more favorable than these; but such will usually be found to be vitiated by some defect in reckoning, or by the unavoidable "personal equation"; which has made the tables of recovery so delusive in times past, that the Wisconsin authorities have refused to allow the hospitals to report recoveries at all.

It will further be noticed that 482 persons were readmissions, in a total of 1977 admissions—nearly one-fourth of the whole. Many of these had already recovered from one to five times in some of the hospitals; while few of them are likely ever to recover permanently. The admission of recent cases, or, at any rate, of persons never before treated in any hospital, is increased for the whole State by cases at the criminal asylum in Bridgewater, and a considerable number at the Tewksbury

State Hospital, which has a department for the chronic insane, but receives these first admissions also. The number of the first admissions at Bridgewater in the year under notice was 62, and at Tewksbury 95; bringing the total of first admissions in all the State establishments up to 1652. But some of these were only nominally first admissions, the record of former treatment having been lost or forgotten. Probably not more than 1600 actually came under medical care for the first time in the State establishments. But among the admissions to the Boston Insane Hospital, to the McLean Hospital, and the various private asylums—as also to the State Epileptic Hospital at Monson—must have been more than 400 first admissions—the number in 1899 was 423—so that more than 2000 of these cases were committed during the year. In the opinion of the State Board of Insanity, hardly more than half these first admissions were actually recent cases—a fact, if it be one, which partly explains the small proportion of recoveries.

In the instructive paper of Dr. P. M. Wise, lately read at the Albany State Conference of Charities, much is said, and with truth, of the improvement in the nursing and treatment of the New York insane, during the past five years; and this he ascribes, quite naturally, to the administration of the Lunacy Commission, of which he is president. But similar improvement has occurred in Massachusetts, and elsewhere, without the application of what he calls "enforcement"; and by methods of "cooperation" less dictatorial than those in New York. It would seem that the conditions in New York, five or six years ago, were exceptionally bad; otherwise an improvement of 50 per cent could hardly be certified. In the matter of cost, Massachusetts makes a more economical showing, on the whole, than New York; and so does Wisconsin, when the statistics of the two States are intelligently compared. Probably it is only in New York itself that the remark is made "The New York institutions are the cynosure of other States and countries." They are not so regarded in Massachusetts, or Pennsylvania, or Ohio, or Wisconsin; certainly not in Scotland, Belgium or Germany. They seem to be struggling upward amid many difficulties—one of which is the evident purpose of the Governor and Legislature to reduce the expenditure; which is met by the risky method of one great State appropriation, instead of the safer mode of weekly board-rates, as in Massachusetts, Wisconsin and Scotland. Five years hence will be none too soon to make a fair comparison between the results in other States, as compared with New York.

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Book Reviews

A Treatise on Mental Diseases, Based upon the Lecture Course of the Johns Hopkins University, 1899, and Designed for the Use of Practitioners and Students of Medicine. By HENRY J. BERKLEY, M. D., Clinical Professor of Psychiatry, the Johns Hopkins University, Chief Visiting Physician to the City Insane Asylum, Baltimore. With Frontispiece, Lithographic Plates, and Illustrations in the Text. (New York, D. Appleton and Company, 1900.)

Dr. Berkley's original and valuable investigations into the normal and pathological histology of the nervous system are well known to all students of the subject. As might be expected, the anatomical aspects of the diseases associated with mental disturbances are fully and instructively considered in the present work. The introductory part, on anatomy and histology, gives an admirable summary of what is pertinent to the subject of the work, unburdened with anatomical details which, however interesting, have no direct relation to psychical phenomena. When he comes to the subject of pathological histology, he is obliged to admit that not very much is known of lesions of the nerve elements associated with specific forms of mental derangement, and he does not devote a great deal of space to their discussion. On the other hand, the lesions of the circulatory system are treated with great fulness, and the most distinctive feature of the book is the emphasis which he lays upon them as factors in the causation of insanity. To them he attributes (p. 55) the origin of the majority of the various types of the organic degenerative forms of mental aberration. This is, it seems to us, putting the matter rather too strongly, important as it undoubtedly is. In few, if any cases is disease of the vessels itself the primary cause of disturbance. In a large proportion of cases the vascular degenerations are certainly, and in most, if not at all, probably due to toxæmic conditions. The assumption that the poison spends its force entirely on the vessels is hardly probable *a priori*, and is not warranted by the facts so far as we know them. Alcohol, for instance, is one of the most potent causes of degeneration of the blood-vessels, but it also directly affects the nervous system.

In the always unsatisfactory matter of classification, the author mainly follows Krafft-Ebing. He separates mental derangements into four main groups: I. Mental disease without ascertainable pathological alteration of the brain substance—idiopathic insanities, which he defines as acquired forms of mental disease arising in individuals without an ac-

quired or inherited predisposition to insanity, and who accordingly have a sound mental constitution. II. Mental diseases sequential to ascertainable alteration of the cerebral substance. III. Insanities due to inherited or acquired mental instability, and IV. States of complete or incomplete retardation of the psychical (and physical) development. As he says of the third class (p. 100), that "They are frequently confounded with the idiopathic psychoses, from which they should be rigidly distinguished, since both the onset and prognosis are essentially dissimilar," it is to be regretted that he nowhere, so far as we have observed, gives the diagnostic criteria. Melancholia and mania are the first forms of "idiopathic" insanity of which he treats. Periodic mania and melancholia are included in his third group. But in his account of idiopathic mania, he states (p. 142) that a vast proportion of the cases occur in persons who have an hereditary history of brain defect, and (p. 147) that fully ninety per cent of those returning to a normal mental condition relapse, while he states, in regard to the periodic manias, that "The diagnosis cannot be made at the onset of the first attack, as the disorder may present every likeness to the ordinary primary simple mania." Again, in his account of States of Mental Stupor, which he includes in his first group, he says (p. 163): "The first and typical form of acute stupor occurs in young neuropathic individuals who exhibit the corporeal brand marks of degeneration."

In our opinion, there are no forms of insanity peculiar to persons of normal cerebral constitution. We doubt if insanity occurs among such persons except as a result of intoxication or malnutrition, which may produce identical forms of derangement in those of originally neuropathic constitution.

He fails to recognize any group of cases corresponding to the "dementia præcox" of Kraepelin, and considers the cases of more or less systematized delusional insanity, apart from chronic progressive paranoia as terminal results of mania and melancholia, in which we cannot agree with him.

Otherwise, we see little in his classification with which to find fault. The section on intoxication insanities, in which he includes not only chemical poisoning, but bacterial and autogenic intoxications, is especially full and valuable. The treatment of the subjects of idiocy and imbecility is also very complete and satisfactory.

The author's descriptions of the various clinical forms of disease are good, and his recommendations in regard to treatment judicious. The book is well printed and illustrated. As is the case with many of the books of the present day, the glossy paper, used on account of the photographic illustrations, makes its weight a weariness to the flesh.

Notwithstanding some points in regard to which we are obliged to differ from the author, we know of no work in the English language which so well represents the present state of our knowledge of its subject, and strongly recommend it to all who are interested in psychiatry.

Idiopathic Ulcerative Colitis (Dysentery). By JAMES F. GEMMEL, M. B.
London. Baillière, Tindall & Cox, 20 and 21 King William Street,
Strand. (Paris, Madrid.) 1898.

The subject of dysentery is, at the present time, endowed with peculiar interest. Never before since the present bacteriological era has it seemed at all probable that the specific cause of the disease might be discovered. Several fundamentally important contributions dating from the past two years would seem to justify the hope that the specific origin of the disease has been obtained. However this may be, the pathology of dysentery needs to be revised. The old terminology is now entirely inadequate, and it is far from established that a profound distinction exists between the epidemics of dysentery, which occur in most countries, and endemics of the disease which prevail especially in warm climates. There is need, moreover, of increased light on the sporadic disease, and, incidentally, upon those peculiar and often devastating local outbreaks in reformatory and other institutions. It is for this last reason that we welcome a monograph by Dr. Gemmel, in which there is described briefly, fully, and succinctly, what he terms "a more than usual severe outbreak of what is variously termed ulcerative colitis, or dysentery." It occurred in the county asylum, Lancaster, in the early part of 1895, and a similar, though milder outbreak towards the end of the autumn of that year. In view of this occurrence, the author felt induced to collate and arrange the clinical data of a more than 10 years' experience in this most distressing and fatal affection, in the hope that the account may be of some interest.

The scope of work may be seen from the titles of the several chapters: thus chapter 1 deals with statistics, tables, and observations thereon; 2, association with other diseases; 3, clinical history, symptoms, treatment, illustrative cases, etc.; 4, post-mortem appearance, with tables; 5, etiology; 6, summary and conclusion.

The first of the statements with which the author begins his subject comes as a great surprise to one, not himself engaged in institutional medical work. The statement is as follows: "It (dysentery) seems to be, in great measure at least, limited to the larger institutions, and of these to some more particularly than to others, cases occurring every year and often accounting for an enormous percentage, as much sometimes as 33 per cent of the total number of deaths. I have calculated the average percentage which it bears in different asylums, directly and indirectly, to the other causes of death for periods ranging up to 14 years, and in some the ratio is so decided as almost to compel one to the belief that there is something endemic and peculiar to these institutions which does not exist in other asylums."

In considering the probable etiology and incidence of dysentery, the fact of local infection cannot be kept too much in mind. It would seem that such questions as food and water supply, as well as the general sanitary arrangements, were not such as would speak for their action

in producing this condition of local prevalence. On the other hand, if the etiology of the disease can be determined, and if future studies show the affection to be due to the specific microorganisms, then the question will be more easily settled, for assuming the primary affection of persons living under the conditions of institutional residence, it were easily conceivable that a persistence of the specific cause might continue to be felt by occasional outbreaks, when, through accidental causes, it again found opportunity for action. Long residence in an asylum, instead of bringing about increased resistance or immunity would seem to act as a predisposing condition to the infection. Age has little influence, although in the epidemics studied by Gemmel, those most affected were in the fifth or sixth decennium; yet those of more tender years were not entirely spared. Sex, also, is of no consequence, and, according to Gemmel, second attacks are by no means uncommon. He has observed many instances of patients being attacked many times, the attacks being separated in some cases by long intervals; and, moreover, it is stated that those who have once had the disease are often the first to feel the influences of a fresh outbreak. This view, which is contrary to that expressed by some other writers, is worthy of more careful attention, especially as in only five of the large number of post-mortem examinations made in this asylum the intestine contained evidences of old cicatrices.

The influences which tend to the dissemination of the disease in the insane asylum are stated clearly and forcibly on page 8. After discussing the similarities of the spread of typhus fever and dysentery, he says: "One cause, however, which seems common to typhus and dysentery, is overcrowding. In regard to this and insanitary conditions generally, as found in asylums, there is one feature which I may say is peculiar to these institutions, and more especially to the larger ones. I refer to the massing together of feeble demented, epileptics and general paralytics. The necessities of these types of insanity, and the demands made upon our accommodations, often compel this, and so render in measure unavoidable what is clearly recognized as a defect. To a greater or less extent, therefore, this insanitary blot exists, and the total disregard for habits of cleanliness exhibited by the insane, more especially by the types just referred to, intensifies the difficulties of dealing with all diseases in any way dependent upon unhealthy environments. The constant soiling with excrement and urine of clothing, bedsteads and floors, especially where the latter, as is often the case, consist of soft, porous wood, rendering it almost impossible to thoroughly cleanse them, will always prove a fertile source of disease. Virchow, speaking of infectious diseases in the army, says, in discussing the question of the ground as the source of the poison: 'It is least of all a question of poison essentially inherent in the soil, but far more the men themselves who defile the ground, and thence outwards, in all directions, the water and the air, through their excretions, especially urine and ordure.' If this can be said of communities of the sane, how much more does it apply to

collections of feeble and insane occupying close and ill-ventilated wards and dormitories, and adding to the unhealthiness of the atmosphere by their filthy habits!" This vivid and essentially correct statement of the dangers arising from the nature of the patients themselves and the conditions of their association, is obviously the explanation of the tendency in asylums for its local dissemination after an outbreak of dysentery.

The statement on page 11 is of the nature of prescience; indeed, with our present knowledge we can carry a step forward the statement that from a "clinical point of view there would seem to be no real distinction between tropical dysentery and the disease as it occurs in temperate climates," by adding that, etiologically, the two diseases are probably identical. Moreover, one readily yields to the belief that dysentery has its abode especially in the tropics, and has in the past existed in this country epidemically and endemically, and that it may, and does, occur in the present with all of its former characteristics under the most varying circumstances, notwithstanding the absence of a specific emanation from the soil. "The meaning, therefore, attaching to endemicity, as applied to the disease in the tropics, only indicates the existence of a cause limited as to locality, and which is in every probability, as has been shown in other countries also at one time the habitat of dysentery and malaria, capable of removal by drainage and cultivation. The difference between the disease, then, in the two zones, seems more apparent than real, and certainly impartial observation does not warrant any sharp line of demarcation being drawn." (Page 12.)

It is a regrettable circumstance that the author has given as the designation of the disease which he describes the title of "Idiopathic Ulcerative Colitis." The intention of the author sharply to separate the form of dysentery which he describes, and which, in his opinion, is due to the specific microorganisms, from that large group of secondary lesions of the intestine of various origins, does not justify entirely the employment of a term which usage has stamped as the equivalent of spontaneousness. Moreover, exception may readily be taken to the definition of so-called "idiopathic ulcerative colitis." "By this is meant a specific affection (due to microorganisms differing according to the climate in which it occurs, or perhaps different methods of investigation) beginning in, and throughout its course, almost invariably limited to, the large bowel, etc." It is unscientific to speak of specific affection, and at the same time to ascribe it to the action of microorganisms, changes by climate, or different methods of investigation. We have no basis for such a conception. In all of the specific diseases so far known, the same properties of microorganisms are encountered, irrespective of the place in which they occur, or the technical method employed in their investigation.

The paragraphs given to the consideration of the complications are of interest. The statement that pneumonia is a most frequent complication is explicable, probably on the basis of the advanced age of those

affected, as well as the condition of debility, the result of their mental disease. At least, implication of the lungs in the general disease is not a common complication. General peritonitis, with or without perforation, was rarely observed; indeed, it was found only once in the post-mortems, and localized inflammations of the peritoneum seemed of equal rarity. Abscesses of the glands and viscera were also of uncommon occurrence, and in only two instances was an abscess of the liver found post mortem. The author's statement that "perhaps the absence of malaria and high modes of living have something to do with this, the hepatic tissue under such circumstances not proving vulnerable," is somewhat gratuitous in that the percentage of hepatic abscesses in acute non-amœbic forms of dysentery is low.

The question of treatment covers several pages. One or two references will suffice. The importance of always putting the patient at once to bed on the least indication of diarrhoea, if for no other than a precautionary measure, is urged. Purgatives were employed, preference being given to the acid tartrate of potassium. After a passing allusion to the use of mercury and ipecacuanha, the statement is made that the drug upon which most reliance was placed was quinine: "Having observed the marked influence exerted by sulphate of quinine upon influenza during a severe outbreak in 1889, I determined to try it in the bowel affection, and did so with marked benefit. So much so, indeed, that now, unless for purposes of comparison, I seldom use any other internal remedy." Trust was not entirely placed in remedies administered by the mouth. In addition, copious high enemata containing various chemicals—nitrate of silver, sulphate of copper, and, best of all, salol, dissolved in turpentine (one or two drachms to a pint of warm water) were employed.

The pathological anatomy shows the disease to have been of the pseudo-membranous type. Various grades of inflammation, and of duration of the disease were encountered. In general, the mucous coat in its entire thickness was involved, the small intestine escaping. In sthenic cases dying at an early stage, the interior of the gut is covered with a thick layer of mucus, more or less stained with blood, beneath which the inflamed and eroded coat is distinctly made out. Diphtheritis varied in extent and occurrence. The asthenic cases generally exhibited large, unhealthy, irregular ulcers and extensive sloughs.

In discussing the etiology, various views now held concerning the bacteriological and amœbic causes having been considered, the author properly states that, "In view, therefore, of the conflicting evidence of experimenters, we must, I think, consider the *B. Coli*, so far as dysentery is concerned, as playing a secondary and unimportant part. It is found in the healthy bowel in large numbers, and would it not, therefore, be more rational to attribute its survival throughout prolonged cultivation as due to the fact of its great hardihood and ability to grow in media, which are not suitable for the life of the other organisms present along with it in the dejecta of dysentery, and among which, with different

culture media, the microbe of the disease may eventually be found?" (Page 120.)

The bacteriological investigations of the disease were conducted by Dr. Goodliffe over a period of about two years, who succeeded in almost every instance in isolating a microorganism which he classifies as a bacillus. Dr. Goodliffe believes that his investigations have shown that the form of ulcerative colitis met with by him is due to a specific bacillus, for the reasons, 1st, it is always present in undoubted cases of the disease, and 2d, it is capable of cultivation outside the body in artificial media. He has, however, not been able to reproduce the disease by inoculating the cultivated bacillus. The organism is distinct from any described variety of the *B. Coli*, and although cultivated through numerous generations, it has maintained its individuality. The characteristics, according to him, are as follows:

"It is a short rod-shaped organism with rounded ends, usually from 1 to 2μ long and about $.5\mu$ broad. Often, however, it is almost as broad as it is long, and is frequently seen in pairs, so that it looks like a diplococcus. It stains easily with Loeffler's aniline blue and the Ehrlich-Weigert or the Ziehl-Nielson methods. It is not decolorized, or only with great difficulty, by Gram's iodine solution, and this forms one of its chief distinctions from the *B. Coli* and *B. typhosus*, both of which part very readily with their coloring matter when treated in this way. It does not liquefy gelatine, is an aerobic and facultative anaerobic bacillus; its anaerobic properties appear to be less pronounced than those of the *B. Coli*, the deeper colonies in a shake culture developing to a much less extent, and a stab culture also bears this out. In a hanging drop, it appears in certain cases to exhibit independent movements, but Dr. Goodliffe expresses doubt as to whether or not this is a constant feature. He has not been able to demonstrate the presence of flagella, though frequent and careful examinations have been made by the special methods recommended for their detection. The bacillus does not, he thinks, form spores; none have been observed in the bacillus when cultivated in various media. This conclusion is confirmed by other facts. Artificial cultures, if left in the incubator at a temperature of 48° C. for twenty-four hours, fail to give any development on inoculation of another tube. Spores were also looked for in the following manner: A tube was inoculated, shaken up and put in the incubator at a body temperature for twenty-four hours; the tube was then allowed to stand at ordinary room temperature for a day, put again into the incubator for another twenty-four hours, allowed to stand another day, and finally put in the incubator at a temperature of 48° C. to 50° C. for twenty-four hours. No growth was got on inoculating a fresh tube. This method was resorted to in the hope of encouraging spore formation, as we know that sometimes organisms will multiply by division at a certain temperature and by spores at another. The fact that the organism is so frequently met with in pairs favors the view that its usual method of generation is by division and not by spores. The bacillus

grows most rapidly at the body temperature, colonies developing and clearly showing in twenty-four hours on agar. At an ordinary room temperature they appear in two days. Colonies fail to develop if kept at a temperature much above 45° C. The following are the appearances of growth in the different media. In bouillon it develops well, and causes cloudiness in twenty-four hours at body temperature. In from four to seven days a whitish deposit is seen at the bottom of the tube. In nutrient gelatine in shake cultures, at the ordinary temperature of the laboratory (about 60° F.), colonies develop as minute whitish specks in from thirty-six to forty-eight hours. In three or four days they are well developed, and appear as small glistening white spots like specks of white paint. If the colonies are thickly set, there is no further change except an occasional coalescence; if, however, they have room for further growth, they develop into round flat discs with a smooth edge, distinct thickened rim, sharp even border, and often a white spot in the center. A hand lens often shows concentric markings on the rim and a fine granularity of the thinner intermediate parts. After a week or ten days they cease to grow, but maintain their glistening white appearance throughout, even if kept for weeks, thus differing from the colonies of *B. Coli*, which become brownish. A stab culture in the same medium grows all along the track, and has a yellowish-white appearance as seen through the medium, with here and there arborescent branchings. These, however, when examined with a lens, are seen to be coarser, more sharply marked, and not so intricate as those of a similar prepared growth of *B. Coli*, and the growth along the track is not so abundant. At the surface a spherical raised growth is observed, glistening white in appearance, and not spreading far from the point of inoculation, whereas the colon bacillus spreads considerably over the surface. Occasionally small gas-bubbles are seen along the track, but this is not constant."

"A surface culture, seen when fully developed in four to six days, is white, sharply demarcated with slightly indented margin, where there is a rim of thicker growth. On agar much the same appearances are presented. On potato a very distinct creamy yellow growth is obtained, looking moist and slimy, with a sharply marked border. In a slightly acid medium, the growth is profuse, the colonies in a shake preparation being distinct and well marked in twenty-four hours at 60° F. It is only when the medium is distinctly acid that growth fails to take place. In sterilized milk at body temperature there is coagulation of casein in from two to three days. In milk tinged with litmus, the bluish color is turned to pink, and the pink color is persistent, thus differing from the reaction given with many of Booker's varieties of *B. Coli*. Indol reaction: A broth culture is kept at body temperature for three days, and nitrous acid then added with the production of a distinct red color. The organism will also grow on a nutrient medium which contains .05 per cent carbohic acid. If the colonies are exposed to direct sunlight for some hours, they fail to give growths on inoculation. If dried on

slides, they also lose their vitality. The bacillus is usually associated in the dejecta with a great many other organisms. In some cases, however, the discharges exhibit almost a pure growth, a possible explanation being that the other organisms are suppressed by the great vitality of the specific one." (Pages 125-128.)

From this brief description, it is evident that while the bacillus possesses certain features in common with the *B. Coli* and *B. typhosus*, it is yet also distinct. Its closest affinities are with the microorganism described by Ogata as the cause of an epidemic of dysentery which occurred in Japan. There are certain differences, the most important being the liquefaction of gelatine by Ogata's bacillus. The microorganism obtained by Goodliffe is easily distinguished from the bacilli of dysentery, which has now been shown to have a wide distribution, through the researches of Shiga, Flexner, Kruse, Strong, and Craig. Perhaps it would be well to emphasize the main points of difference: 1st, the more abundant growth upon ordinary culture media; 2d, the regularity and intensity of indol reaction; 3d, the acidification and coagulation of milk; 4th, non-decoloration by Gram's method; 5th, production of gas in cultures. In opposition to these we find that the latter bacillus grows only slightly more abundantly than the typhoid bacillus, produces a slight quantity of indol, fails to coagulate milk, and, after a brief preliminary acid production, turns litmus blue; it decolorizes readily by Gram's method, and is incapable of fermenting any of the sugars with production of gas.

The monograph to which we have given such detailed attention is an admirable example of what accurate observation, intelligent study, and scientific determination can accomplish in following out disease in institutional practice. Its clear, concise, and forcible expression, moderation of view, precision of detail, and succinct presentations, make of it a model worthy of extensive imitation. The general form of the book—press work, paper, illustration—is also to be highly commended.

Annual Report on Public Charities, Province of Nova Scotia, for the Year ending September 30, 1899.

This document contains, among other papers, the annual report of the Inspector of Hospitals and Asylums of the Province, Dr. G. H. Sinclair, formerly Superintendent of the Nova Scotia Hospital for Insane at Halifax. Judging from Dr. Sinclair's report, the Province of Nova Scotia is having the same trouble in the care of its pauper insane as have many of the States of the Union. Dr. Sinclair says: "In preparing this, my first report on County Asylums and Poor Farms of the Province, I shall assume that every family in the land is interested in their administration and in the insane persons constituting their population in part or in whole, just as they have always been in the care and treatment received by that other large body of the insane who are inmates of the Hospital for the Insane." Apparently a considerable proportion

of the insane in the county asylums of the Province are persons who have been discharged from the Provincial Asylum as hopeless cases. There are in the various county houses no fewer than 600 insane persons, and apparently judging from the report made of Dr. Sinclair's inspection, the care which these unfortunates receive does not differ materially from that given to them in similar institutions elsewhere. In urging the dangers attendant upon the county system, Dr. Sinclair points out the depth to which such care may sink, if it may be called care, and quotes, as illustrative of the deplorable condition of affairs which can occur under county care, the condition of some of the county almshouses of Maryland as reported by the Secretary of the Lunacy Commission for 1898. After quoting a portion of Dr. Preston's report he says: "How horrible to hear of such things in this century and in this Christian land! And yet I tell you that in this Province we have been perilously near furnishing duplicates of such a deplorable picture of man's (perhaps unintentionally) inhumanity to man." The doctor is apparently not sanguine of any immediate steps being taken to remedy the affairs in the Province, and suggests that greater power be given to the inspector, who at present is apparently only permitted to suggest improvements. Among other things he would have the inspector authorized to order patients transferred from the county asylums to the Provincial Asylum at Halifax, found by him more suitable from a medical point of view for treatment in that institution. His experience has taught him that the authorities of county and municipal institutions are very loth to act upon mere request in such matters. We believe that commissioners of lunacy or inspectors having functions such as Dr. Sinclair discharges should, under proper and legal safeguards, have the authority to direct the transfer of patients found improperly cared for in certain institutions similar to those who have fallen under Dr. Sinclair's observation to places more suitable for their care and treatment. We trust that Dr. Sinclair, who seems to have entered upon his duties with enthusiasm, and with a desire to impress upon the inhabitants of Nova Scotia that the care of the insane should be conducted upon a higher plane than has heretofore characterized their treatment in the county and municipal asylums of the Province, will receive the hearty support of the Provincial authorities and of the Legislature and this his wise and humane suggestion will be as promptly carried out as possible.

*Eleventh Annual Report of the New York State Commission in Lunacy—
Albany: 1900.*

The report before us is for the fiscal year ending September 30th, 1899. Some idea of the magnitude of the interests involved and of the work of which this report is a record may be obtained from the following figures:

The daily average number of patients under care in the State hospitals during the period covered by the report was 21,146. The amount ex-

pended for maintenance was \$3,772,969.89 and for construction of new buildings and extraordinary repairs and improvements, \$1,126,043.77. In addition to the patients in the State hospitals there were 930 insane in licensed private institutions and 706 criminal insane in the State Hospital for Insane Criminals, who came under the supervision of the Commission.

Reference is made in the introductory chapter of the report to the animadversions which have been cast upon the standard of care established for the insane in N. Y. State. By standard of care is meant the buildings erected for their protection, the dietary, the nursing, medical attendance, etc. The criticism which the Commission appears to think necessary to controvert has been that the material surroundings, and the care extended to these unfortunate people are far better than they are accustomed to at home.

We have referred to this criticism before in these pages and are glad of an opportunity to again expose its fallacy. It is based upon the assumption that the insane under State care because they are the wards of the State for the time-being and are provided for at public expense are paupers—and are unwisely and improperly provided with surroundings above that suited to their station in life. A glance at the figures we have quoted above will show the utter lack of foundation for any such assumption. Surely the insane of the self-supporting and independent classes of the great State of New York in proportion to those of the pauper population is far greater than a ratio of 930 to 21,146 would represent. In other words the population of the State hospitals is not by any means drawn from the pauper or dependent class.

An examination of the table on page 627 of the report showing the occupation of the patients admitted during the year will, in another and more striking way, prove the truth of what we wish to assert. Of the 5243 patients admitted during the year, 2921, or almost exactly one-half, were classified under professional, commercial, educational, agricultural or mechanical pursuits. Nine hundred and twenty-nine were domestic servants, six hundred and nineteen were laborers, two hundred and sixty-one were seamstresses, book-binders and factory operatives, while but four hundred and twenty-six had no occupation.

We might remark in this connection that while it may be interesting from a statistical and sociological point of view to know how many prostitutes became insane, it seems straining a point somewhat to include these cases among those following an occupation. The statistician of the Commission may reply that the pursuit of these women is a "gainful" one, affords them a living or support and is in that sense their occupation. When, however, the great balance is cast, is it not a fact that these individuals are from the beginning, as well as when they come under public care, a burden upon society, and not only a burden in themselves, but by reason of illegitimate progeny and as the foci of diseases the "direful spring of woes unnumber'd"?

The Commission will probably have difficulty in convincing legislators

and public officials that the insane are not all paupers, and that the standard of care should not be lowered accordingly—but legislators are taken from the people and the Commission's first and manifest duty is to educate the people in the elementary questions which underlie the care of the insane, and which after all have a logical basis which cannot but appeal to the business and common sense of the community.

In a review of the Third Report of the Commission we took occasion to disagree with its denial of the assumption that there was a class of the insane fairly easily recognized to whom the term "curable," or, better still, "recoverable," might be applied. At that time the terms "chronicity" and "unrecoverability" were accepted for all reasonable purposes as synonymous. Since then it is to be hoped that the science of psychiatry has advanced somewhat and that there are other criteria which may be applied in distinguishing these two classes, as indeed there were at that time.

We are glad to see that in the Report under consideration the Commission is willing to recognize a class which it calls "curable" and another class which has "passed the period when recovery may be anticipated."

In regard to these two classes the Commission evidently believes some distinction of care may be humanely and economically made. For the recoverable class what is called the "hospital standard" is desirable and the duty of the State to furnish, while for the other class humane care embraces "comfortable and sanitary living and clothing, reasonable attendance and medical supervision."

The opportunity which the State of New York might, under wise guidance, have taken advantage of when State-care was made the policy which would in the future regulate the care of its insane was a glorious and inviting one. Alas! however those who controlled affairs preferred to characterize all that had been done before their time as "the result of unenlightened selfishness" which had "enforced the legal recognition of incurability." We do not know that it made a particle of difference whether the recognition of incurability was legally admitted, nor is it of interest as to how the "recognition" of a fact admitted by all who had any practical knowledge of the subject could be "enforced" though there may be some in whom the statement may arouse curiosity. The fact remains that after publishing ten reports and accumulating, it is presumed, a mass of experience the eleventh report plainly admits what the third report scoffed at. It is greatly to be regretted that the recognition of the distinction between the two classes of insane under public care was not earlier legally or in some other way enforced upon the Commission.

Had such been the case the wisdom might have been recognized without any enforcement legal or otherwise, of separating those cases clearly recognized as hopeful, of collecting them in small hospitals convenient of access, and of expending upon them the best care and study which the State could afford. This, which would seem to any one the most obvious

duty, the most pressing responsibility, being accomplished, the attention of the State could then have been turned toward the great and overwhelming mass of chronic practically hopeless cases, and methods could have been devised for bestowing upon them that "comfortable and sanitary living and clothing and reasonable attendance and medical supervision" which their condition required.

We feel that had this been done much good would have accrued to the science of psychiatry through the careful clinical study of the few acute cases now overwhelmed and lost in the great mass, and much benefit to the treasury of the State by reason of the more economical care of the chronic cases.

The JOURNAL has always stood for the best care obtainable or to be devised for all of the insane, but we do not believe that such best care requires that insanity in all of its stages should have the same surroundings, the same standard of care or that all cases should enter into the computation of the ratio of expenditure *per capita*.

The experiment at Willard, pushed by its indefatigable and wise conductor, Dr. Chapin, to a successful issue proved to the world that for the great mass of the unrecoverable insane a standard of care which afforded all that the Commission now regards as essential for that class was obtainable at a rate which could not be considered burdensome to the taxpayers.

It is to be greatly regretted that the wisdom displayed by the writers of the report under consideration could not have fallen upon their predecessors.

For years the efforts of the New York Commission have been expended in an almost hopeless effort to keep down expenses and raise the standard of care. The lowering of the *per capita* rate appears, however, to the attentive reader of the reports of that body to have been the paramount issue. This is not surprising when one considers the enormous burden which the care of its insane imposes upon the State and the constant appeals for economy, which must have assailed the ears of the Commission from taxpayers and public officials.

As a result of this one reads the reports of the numerous "conferences" which have occurred between the Commission and the medical officials with a depressing feeling that the true function of the hospitals was being lost sight of and buried under the vexatious discussion of the price of soap and brooms, of salt, molasses and cod-fish, or of the cut and fit of nurses' uniforms, or the most efficient means of cleaning carpets.

Economy of expenditure, community of interest between the purchasing officials of these great hospitals, uniformity of methods of book-keeping to facilitate comparison are all well, but have not the tithes of mint, anise and cummin absorbed so much attention that the weightier matters of the medical care and treatment of the insane have suffered in some degree or at least have they not been pushed too far into the back-ground? Certainly an attentive reader of the published reports of the conferences looks almost in vain for any reference to purely medical matters.

The capacity of the New York State hospitals as they existed at the close of the fiscal year, Sept. 30th, 1898, varied from 310 at Gowanda to 2509 at the King's Park department of the Long Island Hospitals.

The average capacity is 1369. It is easy to read between the lines of the Commission's report that the State hospitals are, some of them at least, much crowded. The report says that the "so-called over-crowding, if any exists, does not materially affect the recovery rate." The suggestion is apparent that some influence upon the recovery rate has been felt.

To our mind a far greater influence as we have intimated above has resulted from this crowding together of cases than can be presumed from any limitation of cubic capacity per patient.

Had those who were responsible in a large measure for the present system in New York taken lessons from the experiences of the past instead of condemning everything which ante-dated their induction to office and power; had they seen the wisdom of organizing at convenient localities throughout the State, hospitals for the acute or hopeful cases, and established large colonies for the chronic and unrecoverable; had they encouraged careful, painstaking clinical studies in the acute hospitals and established at the same time a system of investigation of selected cases which had been regarded as hopeless, our knowledge of psychiatry would have been broadened, and there is good ground for believing that possibly our ability to distinguish between the hopeful and the hopeless class of cases would have been enhanced and placed upon a surer basis.

Certainly such a course would have resulted in much more economical expenditure of money without the danger of incurring charges of "inhumanity" or "unenlightened selfishness." Had such a course been consistently followed the lunacy administration of New York would not now be face to face with the danger of a decided diminution of the resources at its command, and a decided curtailment of its power and influence.

We do not wish to imitate the predecessors of the present Commission in applying epithets to that which has passed into history. We can only regret that an enlightened comprehension of the great problem which confronted the State when it assumed charge of all the dependent insane in its borders, and a reasonable appreciation and recognition of the labors and experiences of their predecessors in lunacy work did not pervade their councils.

As regards the business administration of the hospitals the effort which was made to unify methods and bring the *per capita* expenditure of each hospital to the same standard, has as we pointed out in a review of a previous report met with failure as any student of the conditions present might have predicted.

From the tables published by the Commission we find that the annual *per capita* cost of medical service in the State hospitals varies from \$5.74 at Long Island to \$11.08 at Binghamton and \$18.39 at Rochester.

In the matter of the cost of employees the discrepancies are not so

wide but still there is much variance; as, for example, \$53.40 at St. Lawrence, \$62.10 at Buffalo, and \$72.06 at Utica. In the expenditures for fuel and light, difference of plans of building or location would necessarily produce wide differences in expenditure and we are, therefore, not surprised to find a range of from \$7.33 per annum per patient at Buffalo to \$11.58 at Utica and \$23.42 at St. Lawrence.

In the average cost for staple articles of consumption the rate would be influenced by the local market, by cost of transportation and to some extent by local practice in the use of these articles in the hospital dietary. The average annual *per capita* cost of staple articles, including fresh meats, poultry, wheat flour, butter, cheese, milk, eggs, tea, coffee, sugar, and distilled liquors in all the State hospitals was \$41.11. The variations from this standard were \$49.70 at Hudson River Hospital, \$36.63 at Buffalo, and \$30.82 at Long Island. These are differences of sufficient magnitude to illustrate the impossibility of anything nearly approaching a uniform expenditure *per capita*.

Long ago we predicted that the curtailment of the powers of local Boards of Managers, the introduction of the monthly estimate system would, unless the lunacy administration was exceedingly fortunate, bring about a central purchasing agency, with all the possibilities of fraud and corruption incident to the expenditure of the large sum necessary to the care of the State's insane wards. In the report before us the danger of this is freely admitted and as we go to press we learn that there is grave reason to fear that the Lunacy Commission will be made a one-man commission—in which we see possibilities of serious dangers to the interests of the insane in New York.

Iconoclasts who ruthlessly pull down the structures of the past without distinction as to their good or bad features, and with no well-considered plan build upon the ruins, sometimes have insecure foundations for the structures which they rear with much pride and occasional arrogance, and when the fall of their structure comes, if its builders are not overwhelmed in the ruins, it sometimes happens unfortunately that innocent beings are caught in the catastrophe.

E. N. B.

RÉGIS ON THE PSYCHOSES OF AUTO-INTOXICATION.

Auto-intoxications et delires. (Bordeaux, G. Gounouilh, 1899.)

Les psychoses d'auto-intoxication; considérations générales. (Archives de Neurologie, 1899, No. 40.)

La psychose post-eclampsique. (Bordeaux, G. Delmas, 1899.)

The first and second of the above-named publications are extracts from a prize essay by Dr. Régis; the third treats of a department of the same subject.

The author's position is, that mental disturbances caused by auto-intoxication present a well-defined group of symptoms, of the same character as those caused by toxic substances introduced from without, as in alcoholism.

These symptoms are essentially those described by Chaslin in his

monograph on mental confusion (Meynert's amentia). The author is disposed to believe that they are uniformly due to intoxication, of one sort or another. As special instances, he mentions febrile delirium, renal, hepatic and gastric intoxications.

The characteristic of the mental disturbance in all of these cases, as in delirium tremens, he finds to be a dream condition, in which the patient acts in accordance with his delusions and hallucinations, as in the somnambulistic state. The hallucinations are mostly visual, and usually of a terrifying nature. The delirium is commonly nocturnal at the outset, and in many cases in which the hallucinations are not present during the day, they can be induced by closing the patient's eyes. The delirious condition can often be temporarily interrupted by attracting the patient's attention. There is ordinarily more or less complete amnesia after recovery. The author has succeeded, in some instances, in recalling the forgotten events to the patient's recollection in the hypnotic state, and claims to have cured some patients, in the later stages of toxic insanity by hypnotic suggestion.

He concludes that auto-toxic delirium is not insanity in the common acceptance of the term, although it may, in some cases, terminate in a true vesania.

The diagnosis, in doubtful cases, may be cleared up by physical examination, or by chemical analysis of secretions and excretions.

In the treatment, the elimination of the poisonous substances is of cardinal importance. Cases are given in which very striking results were obtained in gastro-intestinal intoxication by treatment directed to the morbid condition of the alimentary canal.

In the delirium following puerperal eclampsia, he believes that the mental disturbance is not due to the convulsions, but that both are due to a common cause—probably a renal intoxication.

Taking the view that these cases are not of the same nature as those of insanity in the proper sense of the word, he is of the opinion that they should not, when uncomplicated, be treated in institutions for the insane. To us it seems that insanity is not a pathological, but a clinical term. Whether or not a given case of mental derangement is better treated in a special institution depends, not on the name of the disease, but the character and circumstances of the given case.

It need not be said that if it should prove to be true that the symptom-complex described by the author is uniformly due to toxic conditions, it would have an important bearing on prognosis and treatment.

A Text-Book of Pathology in Relation to Mental Diseases. By W. FORD ROBERTSON, M. D., Pathologist to the Scottish Asylums; Formerly Pathologist to the Royal Edinburgh Asylum. Illustrated with sixteen lithographic plates in black and in colors and thirteen engravings. (Edinburgh, William F. Clay 18 Teviot Place, 1900.)

This book is mainly taken up with pathological anatomy, although the author makes it clear at the start that he does not suppose that to be the whole of pathology. Of its 372 pages, exclusive of the index, only

58 are devoted to the pathology of special clinical forms of disease, of which eight are taken up with the acute insanities. There is no separate treatment of the terminal dementias. For these facts, the backward state of our knowledge is responsible. A paragraph from the introduction is worth quoting, both as illustrating the author's standpoint, and for the benefit of those who undertake to decide what mental disturbances are, and what are not "insanity."

"I have not attempted to frame any pathological classification of mental diseases, as I believe that far too little is yet known regarding their pathology, and more especially their etiology, to render possible the successful accomplishment of this object. I have regarded them simply as a clinical group, the pathology of which is to be considered apart from that of other nervous diseases merely for reasons of convenience and practical utility. When a complete and strictly scientific pathological classification of mental diseases is eventually constructed, it will, I venture to predict, be of a very different nature from that represented in some recent attempts to frame such a classification. The fact will be recognized that mental diseases cannot be regarded as in themselves a pathological group, because the classification of diseases must always be based chiefly upon etiology and pathological anatomy, and not upon symptomatology. The ultimate classification will be one in which mental diseases are simply given their proper position among other diseases of the nervous system, and it certainly will not place them in one division. Indeed, it will probably put some of them beside other diseases with which they are hardly even suspected to have any close relationship."

The author is disposed to push the toxic theory of the etiology of insanity pretty well to its extreme limit. He recognizes the importance of the hereditary element in acute insanities, but even here he is disposed to believe that intoxications are the principal exciting causes. The degenerations of senility he holds to be the result of chronic auto-intoxication. General paralysis he believes to be due usually, although not always, to syphilis, and in the exceptional cases he attributes the vascular changes, which he believes to be the primary lesions, to some other toxic agent. In epilepsy, he considers that even in the cases associated with organic changes, the exciting cause of the convulsions is intoxication, probably, in a large proportion of cases, at least, by ammonium carbamate.

The most original part of the work is that which deals with the blood-vessels and the membranes of the brain. Contrary to what is commonly taught, but correctly, as we are satisfied, he describes the capillaries of the brain as provided with an adventitial coat, which he claims to have demonstrated by a special method of staining with platinum. He finds that the superficial layer of the cerebrum is nourished, not by branches of the arteries which supply the deeper portions, but by a special set of short vessels, destitute of a muscular coat. These vessels are specially liable to hyaline degeneration, which is one of the earliest and most constant lesions in general paralysis and senile dementia.

He is satisfied that the pia-arachnoid is destitute of true capillaries, although some of the smaller arterioles are destitute of a muscular coat. This he considers a matter of great importance in its bearings upon pathological changes in the membranes, as they are nourished, not directly by the blood circulating in them, but by the lymph returned to them from the brain by the adventitial sheaths of the cerebral vessels which constitute its lymphatic system. According to his view, in states of malnutrition of the brain, such as must be implied in all conditions of mental derangement, this fluid must be abnormally constituted, and the membranes, accordingly, will be injuriously affected. To this he is disposed to attribute, not only the thickenings and opacities of the pia-arachnoid, but the pathological changes in the dura, and even in the cranial bones and the scalp, so frequently noticed in the insane.

In reference to the neuroglia, he does not accept Weigert's view of the independence of the fibers from the cells. The mere fact of differential staining he does not consider conclusive in this regard, more than in other constituents of the cell—the nuclear membrane, for instance. The neuroglia proper he believes to be derived entirely from the ectoderm, and accounts for some of the discrepancies in the views of other investigators by the presence of mesoblastic cells, which have heretofore been supposed to be identical with the neuroglia, but which he claims to have differentiated by his platinum method of staining.

The section on the morbid conditions of nerve-cells is rather a compilation and criticism of the views of others than a record of original work. He accepts the neurone theory, in spite of the objections raised by Apáthy, Bethe and others, on the ground of their observations of continuity of nerve-fibers between cells, the applicability of which to the higher animals he is disposed to doubt. He does not look with much favor on the hypothesis of the amœboidism of nerve-cells in the sense in which it is usually advocated, but seems more inclined to accept the view of Lugaro, that during sleep there is a general expansion of the "gemmules," and that in psychical activity the number of points of contact is reduced.

He gives a full account of the various morbid alterations found in the nerve-cells in pathological conditions, but is not disposed to believe that specific changes peculiar to individual forms of mental disease have been established, and is rather inclined to be skeptical in regard to the probability of future success in this direction. He has satisfied himself that in dementia consecutive to acute insanity there is a marked diminution of the number of nerve-cells in the cortex.

The bibliography of the work is very full, and will render it of great convenience to the student, apart from the value of the text.

Un cas de perversion sexuelle à forme sadique. Par le DR. EMMANUEL RÉGIS, Chargé du cours des maladies mentales à l'Université de Bordeaux. (Lyon, A. Storck & Cie, 1899.)

Dr. Régis reports the case of a young man whose entire sexual life received its direction from accidentally witnessing, when four or five

years of age, the preparations for administering a spanking to his elder sister, a girl of about fourteen. From this time on, the nates of women became his "fetish." The sight and contact of this portion of the body was the only form of sexual excitement for which he cared. He denied ever having masturbated, or having any desire for normal sexual indulgence. Ultimately he came to have especial delight in the thought of flogging administered to this portion of the body, especially when of sufficient severity to draw blood. He sought out all the references to the subject which he could find in literature; all the pictorial representations of such scenes, and acquired a certain ability in drawing pictures in which the buttocks of women were exhibited in the situations which appealed to his imagination. The genital organs were never represented in these drawings.

Since arriving at maturity he had seldom attempted to gratify his desire for sight and contact of the coveted objects, but on one occasion he passed his hand under the clothes of a little girl, and when she cried out for her mother, fled in alarm. He said that he could appreciate how those who violate children, alarmed by their outcries, might be led to murder them. This circumstance, and the delight which he took in imagining scenes of cruelty, led the author to believe that his anomaly might prove dangerous.

The author discusses, at some length, the genesis of sexual perversions. He is not disposed to believe, with v. Schrenk-Notzing, that the circumstances of the awakening of the sexual instinct are altogether decisive in such cases, but holds that predisposition plays a large part.

Report of the Commissioner of Education for the Year 1898-99. Vol. I. (Washington: Government Printing Office, 1900.)

This volume of 1248 pages contains a valuable paper in Chapter X by Dr. W. O. Krohn on "Minor Mental Abnormalities in Children as Occasioned by certain Erroneous School Methods" which may be commended to all alienists.

Index-Catalogue of the Library of the Surgeon-General's Office, United States Army. Authors and Subjects. Second Series. Volume V. Enamel-Fyuner. (Washington: Government Printing Office, 1900.)

This volume is a continuation of the excellent series of volumes which have been noticed from time to time in the columns of the JOURNAL. It contains 6825 author-titles, representing 2695 volumes and 5957 pamphlets. It also contains 7645 subject-titles of separate books and pamphlets and 40,045 titles of articles in periodicals. The magnitude of the task of compiling such a volume may be conceived when it is considered that under the title Eye nearly 160 double-column pages of references are given, and under the title Fever 225 similar pages. The book deserves the grateful appreciation of all physicians. The Index-Catalogue marked an era in the development of medicine in America and its continued publication has become a necessity. Now that the Index Medicus is no

longer published we are compelled to await the succeeding volumes with increased eagerness and the hope that they may appear rapidly.

Memory. An Inductive Study. By F. W. COLEGROVE, PH. D., D. D., Professor of Philosophy in the University of Washington. With an Introduction by G. STANLEY HALL, LL. D. (New York, Henry Holt and Company, 1900.)

This little book evidently represents a great amount of work and extensive reading. Its value to the student seems to us to be marred by a lack of logical sequence in the treatment of the subject. Thus, the chapter on Diseases of the Memory precedes that on Brain and Mind. The topics of Apperception, Recognition, Time, Attention, Interest, and Association are taken up in the penultimate chapter of the book, in the order named, the last chapter being devoted to Pedagogical Applications.

The author's standpoint may, we think, be fairly stated as follows, as gathered from his views expressed in different parts of the book:

In regard to the relations of mind and the nervous system, he holds that they are not identical, nor the one the product of the other, but come into being simultaneously, and are coextensive in space, so that in whatever living beings, or parts of living beings, there is nervous tissue, there is also the "psychical element" (he avoids the use of the term "soul" or "mind" in this connection). This he offers as a working hypothesis, which he does not attempt to prove. Either the neural or the conscious element may take the initiative in originating states of consciousness. He illustrates his ideas as to their reciprocal action by a number of diagrams, which do not, to our mind, make the mysterious relation between bodily states and states of consciousness any clearer than it was before.

He considers that something equivalent to memory is involved in all nervous action, reflex actions and instincts being in the nature of inherited organic memories.

Taking this view of the matter, it would, of course, be incorrect to consider memory a separate faculty of the mind. We have to do, not with memory, but with memories. Auditory, visual, tactile memories, etc., are separate phenomena, involving the activity of the portions of the central nervous system connected with the organs of the respective senses. In his practical application, in the closing chapter of the book, he seems to rather lose sight of this distinction, and gives the impression that "the memory" can be strengthened by appropriate exercises. It seems to us doubtful if any general increase of power in this respect is attainable in such ways, although there is no doubt that by habits of attention and association, the facility of acquiring and retaining facts in particular lines may be greatly increased. It will be remembered that Mark Twain, in his account of his experiences as a river pilot, states that those who followed that occupation had a most astonishing recollection for all the minutiae of the topography of the river, but for other matters their memory was no better than that of people in general.

In the chapter on Individual Memories, the author epitomizes the results of inquiries addressed to a great number of persons in regard to the workings of their own minds in this regard. Perhaps the most curious conclusion derived from the answers is, that the memory of adults is better, absolutely as well as relatively, for the events of early childhood than that of adolescents, and that the objects and events recalled as the subject-matter of the earliest recollections change with advancing years. This, of course, was only an inference from the character of the replies received from persons of different ages, as there was naturally no opportunity of comparing the recollections of the same persons at different ages. The entire chapter is full of interest, and well worth study, and comprises, in our opinion, the most important part of the original contributions of the book. As a whole, for reasons already stated, we do not think it gives a satisfactory general view of the subject.

Die Mimik des Menschen auf Grund Voluntarisches Psychologie. Von HENRY HUGHES. Mit 119 Abbildungen. (Frankfurt, a. M. Verlag v. Joh. Aß., 1900.)

The study of facial and bodily movements in their relation to the activity of the mind is of interest not only to physiologists and psychologists but to all those whose vocations bring them into close contact with their fellow men. The study is in many cases an unconscious one, and one is hardly aware of how much his actions are dependent in his every-day life on the expression found on the faces of the people with whom he is dealing. The understanding of human nature is largely a knowledge of faces and actions. References to facial expression are found in the legends of almost every land; but Aristotle was the first to put the study on a sounder foundation, and to separate it from its mythical connections. The 18th century phrenology, introduced by Gall, included a study of facial expression; but the works of Bell, Piderit, Darwin and Wundt established by scientific methods our knowledge of the relations which exist between bodily movement and mental activity. Hughes, in the monograph now under consideration, has brought together, in a most careful way, the whole knowledge of the subject, as it is at present.

Hughes deals with the subject of facial expression from its physiological and psychological aspects. The literature is run over in a somewhat hurried manner. The excellent and fundamental work of Ch. Bell, for example, is spoken of in only the briefest way. The account of the history of the subject, also, which should be a most interesting part of a book of this character, is cursory and unsatisfactory.

In the first division of the book the author deals with the psychological basis for facial expression. Movements of the body are reflex, associated or voluntary. Those of the face, however, much more than elsewhere, are influenced by individual differences, such as age, sex, temperament, occupation and general health. Following this is a consideration of the physical basis for facial and bodily movements, beginning with a review

of the sense organs and their anatomy. The facial muscles are also described in some detail. In connection with this the author speaks of the differences in facial expression caused by vascular changes in the skin, such as blushing and turning pale as a result of mental changes. To the movements of the eyes, and more especially of the eyelids and eyebrows, is due much of the expression in the upper part of the face. Changes in the shape of the eyelids, and the extent to which they are allowed to cover the eyeballs, have much to do with the expression which is apparently in the eye itself. The lines on the forehead and around the nose and mouth are concerned in the expression of many emotions. The author discusses the musculature of the mouth, and the relation between its form and the expression of different states of mind.

The movements of various parts of the body are next considered, and it is shown how the mere position of the hands or the head may express emotions which can hardly be indicated in any other way. This, indeed, has come to be a much used means of supplementing our spoken language. It is carried to an extreme in the language of the deaf and dumb.

The last half of the book is devoted to a study of the means of expression of emotions and ideas. Beginning with a discussion of the principles of will, the author traces the relation between the physical and psychological processes. Most of this is taken from Wundt's work. Following this is a treatment of the manner in which impulses are combined to give rise to movements of the various parts of the body. After an account of the general character of consciousness, and the relation of sensory and motor impulses to it, the author speaks of the profound effect which the condition of the mind may have on the body.

The various emotions and states of mind are represented in diagrams taken largely from other books, though it is difficult to detect their source from the accompanying text. Some are easily recognized, such as Figs. 35, 102, 104, 109, and 114, which are evidently sketched from Reylander's figures used by Darwin. The first four figures, also, are slightly modified from drawings in Darwin's work. As a whole, the illustrations are very disappointing. The sketches are crudely made and represent only very roughly what is intended. Facial expression is essentially a subject for illustration, and it is to be regretted that in a book so carefully and well compiled as this one is, there are so few good figures.

In comparing this book with Darwin's work on the subject the difference in point of view is very apparent. Darwin wrote from a biological and teleological standpoint. Hughes tends towards the psychological side of the question. Darwin's work was the result of his own extensive researches. Hughes has compiled with great wealth of detail the researches of others, and in the 400 or more pages of this book he has brought together a large quantity of most valuable material. The arrangement of the book is systematic and well balanced; and the subject is treated in a clear and forcible manner. The contribution which Hughes has made to this most interesting subject is undoubtedly a valuable one.

JOHN BRUCE MACCALLUM.